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University of Alberta

Policy, Change and Environmental Sustainability in the University

by

Tarah Sharon Alexandra Wright 

A thesis submitted to the Faculty of Graduate Studies and Research in
partial fulfillment of the requirements for the degree of Doctor of Philosophy.

in

Educational Administration and Leadership

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Policy, Change and Environmental Sustainability in the University submitted by Tarah Sharon Alexandra Wright in partial fulfillment of the requirements for the degree of Doctor of Philosophy. in Educational Administration and Leadership.

Dedication

To Daniel, who inspires me to be a better person every day!

Abstract

Using a Multiple Paper Format, this dissertation explored issues related to environmental sustainability within a university context. The first paper examined national and international sustainability declarations and institutional sustainability policies related to higher education. The analysis of these documents revealed emerging patterns in how universities are framing the central task of becoming sustainable and how higher education views sustainability. The second paper explored the challenges and barriers for universities attempting to become more sustainable. Using examples from both European and Canadian case studies, this paper confirmed the literature which lists governance, advocacy and leadership, communication, economics and policy issues as potential barriers to institutional environmental change within universities. The third paper examined the extent to which the international environmental sustainability declaration, The Halifax Declaration, was implemented within Canadian signatory universities and the extent to which the Declaration challenged signatories to re-think and reconstruct their environmental policies and practices. The study found that the majority of signatory universities were unable to implement the Halifax Declaration within their institutions and suggested how declarations could be improved based on the case study. The fourth paper reported on a study conducted at Dalhousie University that used the Delphi Technique to consult with key representatives of the university community in order to gain an understanding of stakeholder views and ideas as to the most desirable and feasible ways to incorporate an environmental policy into the activities and structure of the institution. This study was part of a larger project initiated by the Dalhousie University Senate Environmental Committee Environmental Implementation Plan Sub-committee, to create an Implementation Plan for the university's new draft Environmental Policy. The dissertation concludes with a discussion of how the document as a whole contributes to the body of knowledge in sustainability and higher education.

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Chapter One

Introduction

Universities have been recognized as one of the key institutions that can contribute to a better understanding of environmental issues as well as create solutions for the future (Orr, 1992; UNESCO-UNEP, 1978). Critics of the university system, however, claim that universities are environmentally unsustainable institutions in that they graduate ecologically illiterate students (Orr, 1992), do not adequately address environmental issues across the curriculum (Bowers, 1997; Collett & Karakashian, 1996), and are guilty of environmentally unsustainable practices in their physical operations. Many universities have responded to these criticisms by creating environmental sustainability policies and signing international declarations that assert the university's commitment to "greening the campus".

While this desire to consider environmental concerns within the framework of the university has been translated into various policy documents and declarations to which many Canadian universities have become signatories, very few Canadian universities have formally implemented these policies or have made environmental sustainability a priority within their institution. The issue to be addressed by this dissertation is that despite the development of national and international policy directives and guidelines specifically related to the development of sustainable universities, very few institutions have implemented these recommendations and incorporated them into their operations. Universities have signed declarations stating that they will endeavor to become more sustainable and environmentally responsible, yet institutional environmental change within universities rarely occurs. The overall aim of this dissertation research is to explore the challenges that exist for institutional environmental change in the context of Canadian universities. I am pursuing this goal through the following four papers written in a Multiple Paper Format Ph.D. dissertation (as described by the Thesis Handbook, Faculty of Graduate Studies and Research, University of Alberta 2000):

- **Definitions and Frameworks for Environmental Sustainability in Higher Education.** This paper reviews national and international sustainability declarations as well as individual institutional sustainability policies related to higher education. An analysis of these declarations and policies reveals how various institutions are framing the central task of becoming sustainable and how higher education conceives of its commitment to sustainability.
- **Barriers on the Path to Sustainability: European and Canadian Perspectives in Higher Education.** This paper explores the challenges and barriers universities face when navigating the path to sustainability and offers examples from European and Canadian perspectives.
- **The Effect of the Halifax Declaration on Canadian Signatory Universities: A Tenth Year Anniversary Retrospect.** This policy implementation analysis examines the extent to which a higher education sustainability declaration, titled The Halifax Declaration, was implemented within the 16 Canadian signatory universities and the extent to which it challenged those institutions to re-think and reconstruct their environmental policies and practices.
- **Consulting Stakeholders in the Development of an Environmental Policy Implementation Plan: A Delphi Study at Dalhousie University.** This study uses the Delphi Technique to consult with key representatives of the university community in order to gain an understanding of stakeholder views and ideas as to the most

desirable and feasible ways to incorporate an environmental policy into the activities and structure of the institution.

The contribution of this dissertation is both important and original. On a practical level, my research provides the opportunity to better understand how university programs and policies can be created, modified, and improved. On a theoretical level, as Canadian universities work towards effective sustainability planning for their institutions, this study will contribute to the evolving body of knowledge in both environmental and higher education literature.

Why Study Sustainability Within the University Context?

A Personal Response

I first became interested in environmental issues at the age of 12, when I saw Dr. Helen Caldicott speak at Convocation Hall, University of Toronto. Her talk was titled "If You Love This Planet" and she spoke of the horrors of nuclear weapons and their effect on the environment. I believe that it was on that evening that I went through a life transformation. Caldicott challenged my views of the world and inspired a critical self-examination of my beliefs, assumptions, and practices. My views changed on a deep level and I believe that I have never looked at the world the same way again. This transformation changed me so fundamentally that I truly believe it is the reason for the way I approach my own studies and research today.

My undergraduate education in the Environment and Resource Studies Program at the University of Waterloo helped me to develop a better understanding for the physical world and an appreciation of the scientific, cultural, economic, historic, legal and social aspects of environmental issues. I continued my education in the Master of Environmental Studies Program at Dalhousie University. While my interests had always been related to environmental issues, it was not until I started teaching at Dalhousie University that I realized the power educators can have in changing the way individuals act towards the environment. The way I taught had an effect on the way students thought about, and acted towards the environment. This understanding of the power of education brought me to the University of Alberta.

I began the Master of Education program in Adult and Higher Education, believing that environmental education programs for children were well developed, while university and adult environmental education had been much overlooked. My hope in starting the program was to better understand the tools and methods that could be used for effective teaching and planning of curricula for post-secondary learning, so to improve environmental education in Canadian universities. While I did achieve a better understanding of tools and methods for effective teaching and curriculum development, I also came to believe that there could be no "greening" of the curriculum (the development of more holistic classes that incorporate environmental issues across the disciplines) without fundamental change within the institution. My research interests broadened, and I moved in to a Ph.D. program where I began researching broad issues around policy and sustainability in higher education.

This brings us to the present. My Ph.D. research focuses on sustainability in higher education. It is informed by my past experiences and the belief that universities have a responsibility to not only teach about the environment, but to also be leaders in their actions toward a more sustainable future. My research focuses on transformation in inquiry, allows values and ethics to guide the research and sees my role as a researcher as an advocate.

An Academic Response

Universities have been a significant part of society for many years and have served various purposes over time. Newman (1859) suggested that originally the university served an educative purpose by serving the community as a place for the communication and circulation of thought. To Newman, the university's primary purpose was to teach. Modern universities, however, have developed into institutions with much broader foci. Brubacher (1982) suggests two philosophies underlying the functions of the modern university. The first is epistemological in nature, which states that the university's purpose is to answer the great questions of human existence. According to this philosophy, universities seek knowledge and truth. Alternatively, the political philosophy of education states that universities not only seek knowledge, but apply the knowledge in order to solve the complex problems of society. The university educates the citizenry, and prepares students for an active life and social responsibility in the world. While some liberal arts colleges still purport to be guided solely by the epistemological approach, most modern universities tend towards a more pragmatic orientation.

Wille (1997) relates the political philosophy of education to issues with sustainability in higher education. She states that educational institutions are being challenged to take more responsibility for preparing graduates to deal with the environmental problems humanity faces.

Colleges are being asked to prepare graduates with analytical and critical thinking skills, strong communication and technological skills, while at the same time preparing them for active participation in a rapidly changing environment with a commitment to maintaining the integrity of our global ecosystem (Wille, 1997, p. 331).

A movement towards universities becoming models of environmental sustainability has been detected in the literature and practice of many fields including, environmental policy, environmental education and higher education. Universities are encouraged to "green" their physical operations and curriculum in order to serve the community and the environment. Many would argue, however, that universities have failed in becoming models of sustainability (Bowers, 1997 Clugston, 1999; Orr, 1995). Environmental degradation is not the work of ignorant people, "rather, it is largely the result of work by people with BA's, B.Sc.'s, LLB's, MBA's and PhD's" (Orr, 1995, p.7). In fact, it can be argued that it is the well educated people of the developed countries of the world who use most of the earth's natural resources and who contribute the most to the world's ecological problems.

In 1998, 124,861 undergraduate, 22,026 Master's, and 3,926 Ph.D. degrees were granted by Canadian Universities (Association of Universities and Colleges of Canada, 2001). Additionally, Canadian universities currently employ approximately 37,200 full time faculty (Jones, 1997) and countless other part-time faculty and support staff. Universities also serve a role within communities, hosting professional development seminars, and public outreach programs. As such Canadian universities have the potential to influence many individuals and have a significant impact on both human and environmental health. This dissertation will examine some of the current issues surrounding sustainability in higher education

The Context Of University Institutional Environmental Change: A Review of the Literature

This dissertation is based on literature from many academic disciplines. It draws on concepts from environmental studies, sociology, higher education, political science, and,

as such, is interdisciplinary in nature. The following is a brief discussion of the literature that informs the dissertation.

What Is Sustainability?

The term "sustainability" is used in many different contexts, yet a review of the literature reveals that it lacks a single definition. For example, Wackernagel & Rees (1996) view sustainability as the lessening of one's ecological footprint on the earth. The Ecological Footprint is a measure of the 'load' imposed by an individual or a population on the environment. When calculated, the Ecological Footprint represents the land area necessary to sustain current levels of resource consumption and waste discharge by that individual or population. Alternatively, Gladwin (1998) takes a more sociological view describing sustainability as a "process of achieving human development" (p.36) while Viederman (1995) sees sustainability as a moral principle. It is no wonder that Leal Filho (2000) and Judez (2000) claim that it is almost impossible to find two individuals who use the same definition of the term.

To understand sustainability in the context of this dissertation, it is pertinent to look at the history of the term in the environmental literature. The word sustainability was first used loosely by Aldo Leopold (1949) in his discussion of a land ethic, but was not used in a political international environmental context until the late 1960's. A series of international meetings including the Arlie House Conference, The Club of Rome and the United Nations General Assembly Resolution to Convene a United Nations Environment Conference were all pivotal in the development of the term environmental sustainability. These meetings emphasized the desire of the international community to cultivate a global understanding for the importance of a healthy environment and to address how humanity could understand and ameliorate the degradation of the earth's ecosystems.

In 1968, Italian industrialist, Aurelio Peccei, and British chemist Alexander King gathered a group of colleagues to discuss the ramifications of overpopulation and environmental degradation for humanity and the earth. This meeting marked the beginning of the Club of Rome, whose mission became to act as an independent catalyst for environmental change by helping to identify and analyze environmental problems and offer solutions to prevent future degradation. Perhaps the most famous publication of the Club of Rome is the 1972 report Limits to Growth which presented a mathematical model to predict degradation of human, economic, and environmental health due to world population growth. The report argued that humanity could reduce population growth which would result in more sustainable ecological and economic systems around the world.

In the same year, delegates at the United Nations Intergovernmental Conference for Rational Use and Conservation of Biosphere were discussing issues related to sustainability. The proceedings of the conference called for countries to encourage interdisciplinary research in the area of environmental policy, conservation and sustainable resource use. The conference also led to the establishment of the United Nations Education, Scientific and Cultural Organization (UNESCO) Man and the Biosphere Programme (MAB) that continues work in the area of sustainable resource management.

The term "sustainable development" was first used within the international environmental community in 1972 at the United Nations Conference on the Human Environment held in Stockholm. The Conference culminated in the creation of a document that outlined international guidelines for ecological security and sustainability. Sustainable development was the key issue discussed at the World Commission on Environment and Development (WCED) in 1987 which defined the term as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). Similar sentiments were echoed by the Brundtland Commission at the United Nations Conference on Environment and Development (UNCED) in 1992.

When examining the WCED and Brundtland Commission's notion of sustainable development, six fundamental strategies emerge:

1. Economic development and growth in order to meet the needs and aspirations of humanity
2. Conserving and enhancing the resource base
3. Increasing equity within nations and amongst developed and developing countries
4. Reducing population growth
5. Ensuring a rapid reduction in the energy and resource content of growth
6. Integrating environmental and economic considerations into decision making.

While these strategies, and the WCED definition of sustainable development, seem to be popular amongst governments to adopt, there are numerous criticisms to this particular definition of sustainable development (Brown, Postel and Flavin, 1991; Leal Filho, 2000; Gibson, 1991; Hawken, 1992; Jickling, 1999; Miller, 1994; Nikiforuk, 1990; Rees, 1989; Wackenagel & Rees, 1996; Welford, 1995). The various interpretations of sustainability and sustainable development rest on highly dubious assumptions (Jickling, 1999). For example, the Brundtland Commission and the WCED stress equity amongst human beings and nations, yet is anthropocentric in that it ignores the needs of the three million other species sharing the planet with human beings. Further, the WCED definition is written from the normative perspective that nature exists to serve humanity, and that nature must be preserved for the use of humans. Intrinsic values in nature are not accounted for.

The Brundtland Commission and the WCED state that an integral aspect of sustainable development is the development of poorer, less developed countries (LDCs) to "developed" nations standards. On the surface, this can be viewed as an admirable task, however the statement totally disregards the carrying capacity of the earth and the earth's ability to produce even the basic needs for the current world population, not to mention "developed" country luxury items. According to the Ecological Footprint model (Wackenagel & Rees, 1996), it is physically impossible for the earth to produce, for the rest of the world, all of the goods North Americans consume. According to the Ecological Footprint calculations, humanity would need at least three planets the size of the earth for all of humanity to attain the lifestyle of North Americans and also live sustainably. This leads one to wonder if the WCED definition of sustainability is an oxymoron. How can humanity preserve the environment, while at the same time bring poorer nations up to the same level of consumption as the developed world?

It is difficult to tell if a sustainable developer advocates sustaining the environment by limiting development or supports all the development that the environment can sustain (Nikiforuk, 1991, p. 14).

Gibson (1991) criticizes the current popular use of the term sustainable development stating that the term is vague, and therefore "offers more flexibility than clarity about what is to be done" (p. 22). Additionally, Gibson claims that the term attracts hypocrites and fosters delusions that humanity can continue to develop without environmental consequences. Rees (1989) argues that the term has become more accepted by the political mainstream because it can be used to justify sustaining growth.

The Brundtland argument does add up to expecting the global environment to support a great deal more material production and consumption at a time when it seems evident that we are already overstraining our planet's capacity to withstand human impositions (Gibson, 1991, p. 24)

Eckersley (1992) adds that the great flaw of early definitions of sustainable development is that instead of seeking the alleviation of existing poverty through a more equitable distribution of current resources, it seeks an expansion of the worlds resources.

While the WCED and Brundtland Commission definitions which stress growth are used most often by government and businesses, other definitions of sustainable development have emerged in the past decade which seem to be more environmentally friendly and relevant to this study. A report titled Caring For The Earth: A Strategy For Sustainable Living (IUCN/UNEP/WWF (1991), defines sustainable development as improving the quality of human life within the carrying capacity of supporting ecosystems. This definition stresses social and environmental improvement while still understanding the carrying capacity of the earth.

Lesser *et al.* (1991) contend that in order to understand what is truly meant by the term sustainable development, one must make a distinction between development and growth.

To grow means to increase in size by the assimilation or accretion of materials; to develop means to expand or realize the potentialities of, to bring to a fuller greater or better state (Lesser *et al.*, 1991, p. 11).

This dissertation emphasizes a holistic approach to defining sustainability which involves the consideration of ecological, political, social, and economic matters in decision making.

What Is A Sustainable University?

This dissertation is concerned with the notion of sustainability as it applies to universities. In general, educational institutions are considered a key component to change:

The goal of education is to make people wiser, more knowledgeable, better informed, ethical, responsible, critical and capable of continuing to learn...Education, in short, is humanity's best hope and most effective means in the quest to achieve sustainable development (UNESCO, 1997).

A review of the literature on sustainability in higher education clearly states that universities have a moral responsibility to become models of sustainability and centres of environmental research and teaching expertise (Clugston, 1999; Keniry, 1995; Orr, 1995; Cortese, 1992).

While the term "sustainability" is often ambiguous, the literature demonstrates a clear understanding of what it means to be a sustainable university. One of the first documents to describe the components of a sustainable university was the proceedings of the Campus Earth Summit of 1994. This conference, held at Yale University brought together over 450 delegates from 22 countries to develop a Blueprint for a Green Campus (Campus Earth Summit, 1995) which offered a set of criteria to identify a sustainable university. The document stated that a sustainable university is one that:

- ◆ makes environmental sustainability a top priority in campus land-use, transportation, and building planning;
- ◆ integrates environmental knowledge into all relevant disciplines;
- ◆ improves undergraduate and graduate environmental course offerings;
- ◆ arranges opportunities for students to study campus and local environmental issues;
- ◆ performs environmental audits on campus;
- ◆ establishes environmentally responsible purchasing practices;

- ◆ reduces campus waste;
- ◆ maximizes energy efficiency on campus;
- ◆ creates a student environmental center; and
- ◆ supports students who seek environmentally responsible careers (Campus Earth Summit, 1995).

Many documents followed the Blueprint for a Green Campus, modifying and adding to the original list. Clugston (1999), for example, states that indicators of sustainability within a university include:

- ◆ written statements of the university's commitment to sustainability
- ◆ the incorporation of the concept of sustainability into teaching in all disciplines within the university
- ◆ the encouragement of students to critically reflect on environmental issues
- ◆ policies which allow for the hiring, promoting and granting tenure to faculty based on their knowledge of sustainability
- ◆ internal actions to reduce the ecological footprint of the university
- ◆ the existence of support services that emphasize sustainability
- ◆ community outreach projects that benefit the local environment.

From the criteria listed above, it may seem that becoming a sustainable university is an impossible task. Being a sustainable university, however, is not a specific state of being. What is considered sustainable is constantly changing, therefore affecting the way a university acts. One might suggest, however, that it is the process of trying to become more sustainable that is important.

Sustainability is an ideal end-state. Like democracy, it is a lofty goal whose perfect realization eludes us (Atkinson, 1998, p. 14).

University sustainability should be seen more as a continuum with multiple paths upon which an institution can travel rather than a final destination. Keniry (1995) concedes, suggesting a list of 12 benchmarks for colleges and universities to use as indicators of success in traveling along the sustainability continuum:

- Executive Support. Executive staff play crucial roles, forging of partnerships, and making personal commitments to sustainability. (e.g., allocation of funds to advancement of ecological literacy, establishment of committee to encourage environmental accountability, communicate successes in sustainability to other educational institutions and partners);
- Policy. The university formally adopts written environmental mission statements, policies, policy implementation plans, guiding principles, and signs national and international sustainability declarations;
- Resources and Incentives. Resources and incentives are provided to launch new education and operations programs and to increase participation in existing sustainability initiatives. (e.g., hire an environmental coordinator, provide start-up capital for initiatives, provide office space, office equipment, and allow departments to keep savings resulting from conservation programs);
- Structural Framework. The university creates and supports committees to facilitate sustainability. (e.g., committees develop environmental policies and plans, and facilitate communication among departments);

- **Curriculum.** The university integrates sustainability into the curriculum with the aim of ecological literacy. (e.g., encourage staff, faculty and students in environmental initiatives, take measures to integrate ecological principles into all disciplines, classrooms linked to campus operations);
- **Research.** The university supports and promotes research directly related to sustainability. (e.g., tenure and pay increment decisions based on sustainable research, providing incentives for research in environmental sustainability);
- **Ecological Planning and Design.** The university integrates ecological principles into campus planning and building design. (e.g., energy efficiency measures, indigenous landscaping, resource conservation and recycling, alternative energy systems, composting);
- **Sense of Place.** The university is connected to the community and develops programs to extend campus sustainability into a broader community and regional context. (e.g. community water testing programs, landscape restoration projects, watershed education programs, ecological literacy opportunities);
- **Measurable Reduction of Costs and Waste.** The university is aware of resource use and waste production and develops measurements of success (e.g., annual waste management report, ecological footprint calculation, atmospheric emission reductions, species diversity improvements);
- **Public Relations and Documentation.** The university documents and communicates policies, programs, and progress made towards sustainability. (e.g., annual “state of the environment” report, case studies, campus tours of sustainable operations, campus serves as community clearinghouse for sustainability information);
- **Financial Accountability.** The university incorporates full-cost accounting into financial decision making, adopts socially and ethically responsible investment practices, and extends expectations of sustainability to suppliers. (e.g., lifecycle analysis of university products, create an environmental procurement policy, divestment from controversial and/or socially irresponsible corporate entities, develops environmental standards and screening procedures for investment); and
- **Leadership Development and Training.** The university invests the resources necessary to offer training and education to improve leadership skills and ecological literacy. (e.g. training and certification programs, professional development opportunities, career fairs, conferences, industry seminars related to sustainability). (Based on Keniry, 1995, p. 190-200).

These “Benchmarks of Success” have been used by many universities around the world. This suggests that sustainability in higher education is being pursued and is becoming more important throughout the academic community. Travelling along the continuum of sustainability, however, can present many challenges. It is necessary to examine the notion of university institutional environmental change in order to have a better understanding of the challenges university sustainability measures currently pose, and could pose in the future.

Conceptualizing University Institutional Environmental Change

Theory plays an important role in any research. It adds meaningfulness by situating one's research in a larger context and explains the lens through which the research will be examined. Merriam (1988) explains that theory affects research in that it serves to guide the collection of information and the interpretation of results. It is necessary, if research is to be meaningful, that a study states what relationship various concepts and theories have to a particular study.

Theory gives us a common framework, a common perspective, and a common vocabulary that helps us ask questions in a sensible way and make sense of problems. By summarizing what we already know, theory helps us identify what we don't know, and so it is the starting point for deciding what really needs to be researched. (Moore & Kearsley, 1996, p. 197).

Theory provides a framework for what is to be studied and what data are to be collected. A theoretical framework is intended to contextualize one's research and examine the relationship of a given study to theory. Merriam (1988) posits that while quantitative research often tests theories, qualitative research can build on, or may even create theory. The following section discusses the general relationship of various concepts in this dissertation in order to better understand why and how this research was conducted. This dissertation rests on one main concept that needs to be operationalized: university institutional environmental change.

Change in the context of the university can be a confusing matter. The term change is ubiquitous, but somewhat vague as one can find multiple forms and contexts in which to use the word change. Change can be evolutionary, revolutionary, cyclical, or catastrophic (Myers, 1990). Change can also be viewed as both a process and an altered state. An understanding of the word can be further confounded by similar terms such as educational renaissance (Cetron, 1991), paradigm shift (Ferguson, 1980), and educational reform (Fullan, 1991).

When looking at the notion of universities as agents of institutional environmental change, it is apparent that there are two basic views. First, critics of the university system claim that the university is merely an indicator of changes in attitude within a society, and cannot provide the impetus for social change (Althusser, 1971; Bourdieu, 1976). Althusser (1971) maintains that educational institutions are created by society and are therefore merely a reflection of society. As such, universities inevitably reflect society and are in no way a force for social change.

Yet there are other who disagree (e.g. Coleman, 1966; Jencks, 1972). Floud (1975) cites many authors who believe that education is a major factor in creating social change. Further, Floud offers the example of human capital theory that was employed in North America after the First World War. The thought of the day was that investment in education was the key to economic prosperity and therefore essential to the advancement of society.

Simon (1984), on the other hand, suggests that the question of the ability of educational institutions to influence social change has not been adequately addressed.

Certainly, it seems to me, contemporary theorizing and empirical studies on the issue — that is, on the relations between educational and social change — are both seriously misleading and in many ways shortsighted. They ignore human subjective experience, (hu)man's capacity for movement for acting on the environment and transforming

it, and so for self-change. It is this process which is educative, and profoundly so. And it is this which we need to take into account when seeking an answer to our question. (Simon, 1984, p. 46).

The premise of this dissertation is that universities are indeed able to effect societal change. Universities are agents of education and of lifelong learning, and as such have the potential to affect individuals lives and be the agents of social, political, and environmental change.

This dissertation also examines the idea of university institutional environmental change. For the purposes of this study institutional environmental change is operationally defined in a positive sense as institutional reform with the purpose of improving the environmental performance of the university. This involves both the development of environmental curriculum and the greening of physical operations. The rationale behind institutional environmental change within the university is for the university to become both a model of sustainability for the community as well as produce ecologically literate graduates who are able to affect environmental change through their work and lifestyle choices.

University institutional environmental change requires many key factors in order to be successful. Advocacy, for example, is needed to provide the impetus for change (Allen, 1999; Cortese, 1992). Effective leadership is also considered a key factor in sustaining institutional environmental change (Orr, 1990; Keniry, 1995; Wood, 1990). A need for adequate resources, such as personnel (MacTaggart, 1996; Wood, 1990), working space (Bowers, 1997), currency (Allen, 1999; Lane, 1990), and information (Gilbert, 1996; Smith, 1993) are also deemed essential for facilitating change. While these factors are key elements in university institutional environmental change and will be considered throughout this document, this dissertation will focus primarily on environmental policy as a catalyst for change.

The literature on university sustainability suggests a need for institutional policies regarding institutional environmental change to be both developed and implemented (Keniry, 1995; Smith, 1993). Policies can be considered the course of action or inaction taken by organizations to address a problem or interrelated set of problems. When looking at environmental policy, Kraft (2001) states that policies related to the environment are often broad in scope, and transcend traditional policy boundaries. Additionally, Kraft claims that many environmental policies are more symbolic than tangible.

Not all environmental policies are intended to solve problems. Some are mainly expressive in nature. They articulate environmental values and goals that are intensely held by the public and especially by key interest groups, such as environmentalists. Such statements may have little direct relationship to legally specified policy goals and objectives, although they may nevertheless bring about important environmental changes over time by influencing public beliefs and organizational values and decision making. (Kraft, 2001, p. 12).

In terms of university institutional environmental change, there is a growing concern that policies and declarations are indeed expressions of values, but not substantial enough to solve problems. This dissertation examines the perceived lack of action resulting from university sustainability policies and declarations by examining the development, implementation, and effectiveness of policies in creating institutional environmental change within postsecondary institutions and suggests courses of action for the future.

Policy Analysis

This dissertation uses many forms of policy analysis. The study of policy spans many disciplines and incorporates aspects of political science sociology, demography, educational psychology and evaluation. Cibulka (1994) discusses policy research as a continuum from basic to applied policy analysis. Basic research involves academic analyses, in which inquiry is based on the development of theory and the aim of the research is to explain and predict. The goal of applied policy analysis is to solve problems for stakeholders and to create change. It is my belief that this dissertation fits somewhere near the centre of this continuum.

Policy analysis can involve many different types of inquiry including the analysis of a policy problem, policy development and design, policy implementation and evaluation. The identification of what constitutes a problem involves a mix of personal perceptions, prior knowledge and experience, and the basic normative beliefs and values. Policy problems and opportunities do not simply exist but are rather social constructs that arise from people's interactions with their environmental and other people. Diagnoses can be understood as the explanations given about what the problems really are. They identify the causes, the reasons why the problem exists and other factors affecting a situation.

Pal (1997) describes policy design as a "mix of inspiration and technique" (p. 101). It involves both the framing of the policy issue through problem definition as well as an analysis of which tools and instruments are used to achieve certain outcomes. When conducting an analysis of a policy document it is necessary to understand what is affecting its design. One of the most important understandings involves systems identification.

The term "system" is used with a variety of different meanings. In the most general sense, however, a system is a set of components and their interrelationships. The behaviour or functioning of a system is determined by both its components and their interrelationships, and cannot be fully understood by examining just the parts alone. Policy problems often arise from causes associated with the functioning of human systems and from the interactions between systems. In policy analysis all systems are composed of subsystems and are also in themselves, a subsystem of some larger system. When framing a policy analysis, the analyst will select a system, subsystem and boundaries according to their own understandings of the issue. It is therefore pertinent to note that policy analysis is, and will always be subjective.

Whereas an analysis of policy design looks at the actual "blueprint" of the document, the analysis of policy implementation involves an understanding of the execution of the policy design. In essence, policy implementation moves the policy from theory to practice. According to Pal (1997), implementation contributes significantly to the success or failure of a policy document. If, for example, a policy is designed well but the implementation is poor, a policy will ultimately fail. If, on the other hand the design is good and the implementation is effective, the policy will succeed. A final part of policy implementation analysis, therefore, could involve an analysis of both the policy design and implementation.

This dissertation has engaged in multiple forms of policy analysis including policy problem analysis (Chapter One), policy development and design analysis (Chapters Two and Three), policy implementation and evaluation analysis (Chapters Two and Four). Chapter Five takes what has been learned through the various policy analyses in the previous chapters and attempts to apply them in a form of action research. Chapters Four and Five are specifically driven by a desire to be meaningful for the university practitioners community and create change, yet all of the papers contribute

to a better understanding of environment and sustainability policy and contribute to theory.

Conclusion

This chapter has provided the conceptual foundations for this dissertation. The following chapters will present four individual papers that expand on these concepts and provide a more thorough discussion of the concepts introduced in this chapter. It is important to note, however, that while the overall goal of this dissertation is to come to a better understanding of the issues and challenges of institutional environmental change within universities, each of the papers has a distinct focus, and therefore employs different concepts and methods.

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Chapter Two

Definitions and Frameworks for Environmental Sustainability in Higher Education

Introduction

Internationally, environmental sustainability is considered an essential component to the future well being of humanity and the planet. Early on, the United Nations, especially via the work done as part of the UNESCO-UNEP International Environmental Education Programme, recognized that universities could play a major role in maintaining human and planetary health through both environmental education and by "greening" their physical operations (UNESCO-UNEP, 1978). Statements of intent towards environmental sustainability in higher education have been made at macro (national and international declarations) and micro (institutional statements and policies) levels. There is a current gap in knowledge, however, as to how these declarations and policies have been embraced, incorporated and implemented in various institutions and what themes and priorities can be identified as emerging from current sustainability statements. Part of the problem resides in the fact that, often, such statements are made on an ad hoc basis, with little emphasis on their long-term implications.

This paper reviews definitions and frameworks for sustainability in higher education by examining a set of major national and international declarations and institutional policies related to environmental sustainability in universities. It identifies emerging themes and priorities, and discusses how these declarations and policies are affecting various institutions in how they frame the central task of becoming sustainable and how they perceive their own commitment to sustainability.

Defining Sustainability Within Higher Education

The terms "sustainable," "sustainability," and "sustainable development" are ubiquitous, yet lack clear definition. These terms infiltrate our society through various government documents, mainstream media, corporate newsletters, and international agreements. However, there exists a paradox in terminology where few truly understand the meaning of sustainability and those who claim otherwise rarely agree (Judes, 2000; Leal Filho, 2000).

The idea of sustainability within an international environmental context evolved out of a growing understanding that planetary resources are finite. Publications such as Limits of Growth (Meadows, 1974) produced by The Club of Rome, and meetings such as the Arlie House Conference, the Biosphere Conference and the General Assembly Resolution to Convene a United Nations Environment Conference, emphasized a need to foster a global understanding of the environment and to address how humanity could ameliorate the degradation of the biosphere.

The term sustainable development, along with principles for ecological security and sustainability, first arose in 1972 among the international environmental community at the United Nations Conference on the Human Environment. The occasion that arguably brought the term into common use world-wide, however, was the work performed by the World Commission on Environment and Development (WCED) which defined sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). Similar sentiments were echoed by the UNCED, the United Nations Conference on Environment and Development, held in Rio de Janeiro, Brazil in June 1992. Numerous criticisms to this definition of sustainable development exist, including the anthropocentric connotations of

the wording, strategies that ignore the carrying capacity of the planet, vague wording which allows individuals to manipulate the definition, and the definition's apparent support for sustaining growth (Brown *et al.* 1991; Leal Filho, 2000; Gibson, 1991; Hawken, 1992; Miller 1994; Nikiforuk 1990; Rees 1989; Wackenagel and Rees, 1996; Welford 1995). However, this definition is very popular to date and has been used in many policy and government documents worldwide.

To understand sustainable development within the context of higher education it is pertinent to omit the word development and discuss only the notion of sustainability. In the literature, the idea of sustainable universities implies a moral responsibility on the part of higher education to be accountable for effects relating to the natural environment and to future generations.

Universities educate most of the people who develop and manage society's institutions. For this reason, universities bear profound responsibilities to increase the awareness, knowledge, technologies and tools to create an environmentally sustainable future (University Leaders For A Sustainable Future, 1990).

Colleges and universities are vested by society with the task of discerning truth, imparting values, and socializing students to contribute to social progress and the advancement of knowledge. They have a major responsibility to impart the moral vision and technical knowledge needed to ensure a high quality of life for future generations (Clugston, 1999).

What does it mean to be a sustainable university? In 1995, the document titled Blueprint for a Green Campus was published as a result of the Campus Earth Summit held at Yale University. This conference brought together over 450 individuals from 22 countries to create a set of recommendations for sustainability in higher education. According to this plan, a sustainable university is one that:

- ◆ makes environmental sustainability a top priority in campus land-use; transportation, and building planning;
- ◆ integrates environmental knowledge into all relevant disciplines;
- ◆ improves undergraduate and graduate environmental course offerings;
- ◆ arranges opportunities for students to study campus and local environmental issues;
- ◆ performs environmental audits on campus;
- ◆ establishes environmentally responsible purchasing practices;
- ◆ maximizes energy efficiency on campus and reduces waste;
- ◆ creates a student environmental center; and
- ◆ supports students who seek environmentally responsible careers (Campus Earth Summit, 1995)

As an addition to the previous list, Clugston (1999) states that the critical steps to creating a sustainable university include:

- ◆ creating written statements of the university's commitment to sustainability;
- ◆ incorporating the concept of sustainability into all disciplines within the university;
- ◆ encouraging students to critically reflect on environmental issues;
- ◆ hiring, promoting and granting tenure to faculty based on their knowledge of sustainability;
- ◆ taking action to reduce the ecological footprint of the university;
- ◆ supporting services that emphasize sustainability; and
- ◆ engaging in community outreach projects to benefit the local environment.

Adhering to the criteria and steps required to become a sustainable university may seem an insurmountable task. One reason is that the foundational philosophies on which universities are founded tend to be fragmented and mostly sectoralized. Clugston and Calder (1999) concede that modern universities are the embodiment of the mechanistic, utilitarian worldview that shaped the scientific and industrial revolutions, and as such are deeply involved in providing expertise for an unsustainable world. Major forces such as the disciplinary structure of academia, economic forces, institutional ethos and institutional support are key factors in preventing universities from becoming more sustainable. Moreover, many university administrations interpret sustainability as a definitive endpoint, similar to other educational policies related to finances and institutional restructuring. Atkisson (1998) posits that "sustainability is an ideal end-state. Like democracy, it is a lofty goal whose perfect realization eludes us" (p. 14). In order for higher education to move forward, it is necessary to conceptualize sustainability as a continuum upon which institutions can travel, rather than a definitive achievement.

Frameworks for Sustainability in Higher Education

Internationally, many institutions of higher education attempt to become more sustainable by signing national and international sustainability declarations and/or creating individual environmental and sustainability policies that are institutionally relevant. This paper will not be an exhaustive examination of all international or institution-specific sustainability declarations, but will help the reader to understand the general trends and frameworks that have emerged in the area of sustainability in higher education. There are numerous national and international declarations related to the environment and sustainability. The following section offers an overview of those declarations that have direct relevance to sustainability in higher education.

The Stockholm Declaration. The Stockholm Declaration, written at the Stockholm Conference on the Human Environment in 1972, was the first declaration to make reference to sustainability in higher education, albeit in an indirect way. While the conference was not specifically focused on university sustainability initiatives, the principles offered in the declaration have relevance to this study.

Situating itself primarily in environmental law, the Stockholm Declaration recognized the interdependency between humanity and the environment. This was one of the first documents to discuss inter and intra-generational equity amongst humans, but was anthropocentric in that little was mentioned about the rights of nature. The declaration clearly had a human-centred focus, stating that nations must "improve the human environment for present and future generations...a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and world-wide economic and social development" (UNESCO, 1972, p. 1).

The Stockholm Declaration offered 24 principles to achieve environmental sustainability, stressing bilateral and multilateral arrangements. While the majority of principles focused on legislation, Principle 19 stated the need for environmental education from grade school to adulthood. The rationale offered was that education would "broaden the basis for enlightened opinions and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension" (UNESCO, 1972, Principle 19).

The Tbilisi Declaration. One of the most important moments in the evolution of international sustainability declarations related to education was the Intergovernmental Conference on Environmental Education in Tbilisi, the capital of Georgia, a Soviet Republic in 1977. This conference, sponsored by United Nations Educational, Scientific

and Cultural Organization (UNESCO) and the United Nations Environment Program (UNEP), is considered, along with the Belgrade Conference in 1975 (which approved the Belgrade Charter), to be one of the starting-points for formal international environmental education initiatives.

The Tbilisi Conference echoed the sentiments of the Stockholm Declaration by stating that environmental education should be provided to people of all ages, all levels of academic aptitude and must be delivered in both formal and non-formal environments. The declaration discussed the need for environmental education, the principal characteristics of environmental education and offered guidelines for international strategies of action including specific recommendations for university education, specialist training, international and regional co-operation, access to information, research and experimentation, training of personnel, informing and educating the public, technical and vocational education and educational programs and materials. The declaration implored higher education to consider environmental and sustainability concerns within the framework of the general university.

Universities, as centres for research, teaching and training of qualified personnel for the nation, must be increasingly available to undertake research concerning environmental education and to train experts in formal and non-formal education. Environmental education...is necessary for students in all fields, not only natural and technical sciences, but also social sciences and arts, because the relationship between nature, technology and society mark and determine the development of a society (UNESCO-UNEP, 1977, p. 33).

The Tbilisi Declaration further recognized requirements for the development of sustainability initiatives within the university amongst faculty, students and support staff and was the first declaration to take an international and holistic approach to the environment within a higher education context.

The Talloires Declaration. In October 1990, presidents, vice-chancellors, and rectors from universities around the world gathered in Talloires, France for a conference organized by the Tufts University European Center. The conference mandate was to have internationally respected environmental leaders work with university administrators to address the role universities can play in working towards an environmentally sustainable future. This resulted in the creation of the Talloires Declaration which was the first statement made by university administrators of a commitment to sustainability in higher education.

The declaration was signed by all members present at the conference, who stated that "university heads must provide leadership and support to mobilize internal and external resources so that their institutions respond to this urgent challenge" (UNESCO, 1990, p. 2). It concluded with a statement of the importance of universities working together towards environmental sustainability and a directive to signatory universities to encourage colleagues who were not present at the conference to sign the declaration and join administrators in their efforts. This task was indeed realized as the signatories to the Talloires have increased from 20 in 1990 to over 275 signatories in 2000 (University Leaders for a Sustainable Future, 2000).

The Halifax Declaration. The Halifax Declaration was a direct result of the Conference on University Action for Sustainable Development in Halifax, Nova Scotia, Canada, December 9 - 11, 1991. The conference, sponsored by Dalhousie University, the Association of Universities and Colleges of Canada, the International Association of Universities, and the United Nations University, was attended by university presidents, faculty, students, officials from all levels of

Canadian government, non-governmental organizations and the business community. Participants also represented a wide range of nationalities, however the majority were Canadian.

The principal goal of the conference was to consider the role universities could play in improving the capacity of countries to address environment and development issues, and to discuss the implications the Talloires Declaration had for Canadian Universities. During the conference, one group met to create a declaration that reflected the ideas generated at the conference. The result was the Halifax Declaration which recognized the leadership role universities could play in a world at serious risk of irreparable environmental damage and asserted that the university community must be challenged to re-think and re-construct their environmental policies and practices in order to contribute to sustainable development on local, national and international levels.

Because the educational, research and public service roles of universities enable them to be competent, effective contributors to the major attitudinal and policy changes necessary for a sustainable future, [the Halifax Declaration invites all universities] to enhance the capacity of the university to each and practice sustainable development principles, to increase environmental literacy, and to enhance the understanding of environmental ethics among faculty, students and the public at large (Lester Pearson Institute for International Development, 1992) .

The Halifax Declaration offered a new dimension to sustainability declarations as it volunteered an Action Plan that outlined short and long-term goals for Canadian universities and identified specific frameworks for action within the university.

Agenda 21 - Chapter 36. Agenda 21 was the result of the United Nations Conference on Environment and Development held in Rio de Janeiro, 1992. While practically all of the chapters in Agenda 21 are related to environmental sustainability, Chapter 36 (Education, Awareness and Training) specifically addresses issues related to sustainability in education (UNCED, 1992). Chapter 36 first recognized past university sustainability directives, and stated that the Tbilisi Declaration provided the fundamental principles for the proposals listed in Agenda 21. The three main thrusts were:

- ◆ reorienting education towards sustainable development;
- ◆ increasing public awareness of environmental issues; and
- ◆ promoting environmental training among educators.

Chapter 36 includes initiatives that individuals, governments and nations can take to ensure sustainable development, recognizing that various countries will develop their own programs according to their specific needs, policies and responsibilities. Of particular relevance to this discussion of sustainability in higher education are the following sections:

- ◆ Section 36.5(a) states that countries must broaden the means and scope of education to support sustainable development;
- ◆ Section 36.(i) claims that countries should support university and other tertiary activities and encourage the development of national university actions to promote research and common teaching approaches to sustainable development;
- ◆ Section 36.10(d) states that countries should encourage universities to contribute more to the building of environmental awareness in communities; and

- ◆ Section 36.18 asserts that all countries should establish practical training programs for graduates from universities to enable them to act sustainably in their chosen livelihoods.

In summary, Chapter 36 identified a lack of environmental awareness throughout the world, and recognized formal and informal education as a solution to environmentally unsustainable behaviour.

The Kyoto Declaration. The Kyoto Declaration was the result of 90 international university leaders assembling for the Ninth International Association of Universities Round Table in 1990, and was closely tied to Agenda 21 and the United Nations Commission on Environment and Development Conference in Rio de Janeiro.

Many of us were surprised and saddened by the relatively low participation of the universities, their associations, leaders and scholars. The lesson was clear: universities must not forfeit their natural claim to leadership (International Association of Universities, 1993a).

The main contribution of the Kyoto Declaration to our current discussion was a call for a clearer vision of how to achieve sustainability within universities. The Kyoto Declaration claimed that the international university community must create specific plans of action in order to pursue the goal of sustainability. The Kyoto Declaration also stressed the ethical obligation of universities to the environment and to sustainable development principles.

Global sustainable development implies changes of existing value systems, a task which universities have an essential mission in, in order to create the necessary international consciousness and global sense of responsibility and solidarity (International Association of Universities, 1993, p. 4).

A final feature of the declaration was its challenge to universities to not only promote sustainability through environmental education, but also through the physical operations of a university.

The Swansea Declaration. The Swansea Declaration of 1993 brought together representatives from over 400 universities in 47 countries, and echoed the sentiments of past declarations asserting that universities had a major responsibility to help societies develop in an "environmentally secure and civilized world" (UNESCO, 1993, p. 1). The declaration repeated many of the tenets of past university sustainability declarations. These included the need for universities to review their physical operations, the desire for environmentally literate students and faculty, and an emphasis on the ethical obligations universities have to present and future generations. The Swansea Declaration added an interesting dimension to the discussion of sustainability in higher education in that it stressed equality amongst countries as an important factor in achieving sustainability.

Solutions to these problems can only be effective to the extent that the mutual vulnerability of all societies, developed and developing, is recognized, and the energies and skills of people everywhere be employed in a positive, co-operative fashion (UNESCO, 1993, p.1).

The members of the Association of Commonwealth Universities recognized that while environmental sustainability was of great importance to developed countries, less developed nations may have more pressing and immediate priorities. The Swansea

Declaration also appealed for universities of richer countries to aid in the evolution of university environmental sustainability programs in less wealthy nations worldwide.

The CRE Copernicus Charter. The Copernicus Charter was developed by the Conference of European Rectors (CRE), now called the Association of European Universities in 1993 and presented to its membership in 1994. The Copernicus Charter was a direct result of discussions within the organization, culminating in a call for a higher education sustainability statement that would be relevant to the over 500 universities within 36 countries that CRE represented. The Charter, which is considered a follow-up to the signing of the Magna Charta of European Universities 1988, the Talloires Declaration 1990, the Halifax Declaration of 1991, and the 1992 Earth Summit in Rio, reiterated the need for universities to be leaders in creating sustainable societies, and stressed the need for a new frame of mind and set of environmental values within the higher education community.

Key areas in the charter included public outreach, environmental literacy and encouraging partnerships. Principle 2 discussed environmental literacy, explicitly stating that universities must not only provide opportunities for students, but for university employees as well so that all individuals within the university can work in an environmentally responsible manner. Principle 7 emphasized the need for networking amongst universities:

Universities shall promote interdisciplinary networks of environmental experts at the local, national, regional and international levels, with the aim of collaborating on common environmental projects in both research and education. For this, the mobility of students and scholars should be encouraged (CRE-Copernicus, 1994, Principle 7).

The Charter has been very popular to date, with over 280 signatories in January 2000 (Copernicus Secretariat, 2000). The signatories list is currently held at the Copernicus Secretariat Office and the list of universities signing the Charter continues to grow.

The Thessaloniki Declaration. The most recent declaration which has a link to university environmental sustainability was completed in Thessaloniki, Greece, in 1997 at the UNESCO Conference on Environment and Society: Education and Public Awareness For Sustainability , hosted by the Government of Greece. This event was a follow-up, 20 years later, of the UNESCO Tbilisi conference. The participants at this conference felt that radical social change must occur before environmental change can transpire.

Poverty makes the delivery of education and other social services more difficult and leads to population growth and environmental degradation. Poverty reduction is thus an essential goal and indispensable condition for sustainability (UNESCO, 1997, Section 7.0)

The declaration also recognized that sustainability initiatives must take place at all levels of society and must be interdisciplinary in nature. The declaration argued that the concept of environmental sustainability must be clearly linked with poverty, population, food security, democracy, human rights, peace and health and a respect for traditional cultural and ecological knowledge.

With regard to formal education, the Thessaloniki Declaration affirmed that all subject disciplines must address issues related to the environment and sustainable development and that university curricula must be reoriented towards a holistic approach to education. Finally, the declaration called for governments and leaders

in education to honour the commitments they had already made in signing past declarations of environmental sustainability.

Implementing National and International Declarations

Since the Stockholm Declaration of 1972, there has been a steady development of national and international sustainability declarations relevant to higher education (Table 2-1). There is a current gap in knowledge, however, as to how these declarations have been incorporated and implemented in signatory colleges and universities. It is conceivably a daunting (and perhaps impossible) task to understand how these declarations have been implemented as a whole, but an examination of a few individual universities who have endeavored to implement these declarations reveals the extent to which some universities have implemented the declarations and honoured their commitments as signatories.

Table 2-1: Chronology of Some Declarations Related to Sustainability in Higher Education

YEAR	DECLARATION
1972	The Stockholm Declaration On The Human Environment
1977	Tbilisi Declaration
1990	University Presidents for a Sustainable Future: The Talloires Declaration
1991	The Halifax Declaration
1992	Report of the United Nations Conference On Environment and Development - Chapter 36: Promoting Education, Public Awareness and Training
1993	Ninth International Association of Universities Round Table: The Kyoto Declaration
1993	Association of Commonwealth Universities' Fifteenth Quinquennial Conference: Swansea Declaration
1994	CRE Copernicus Charter
1997	International Conference on Environment and Society – Education and Public Awareness for Sustainability: Declaration of Thessaloniki

Implementing The Talloires Declaration. This study has revealed three categories of signatories to the Talloires; a) those that have made no attempt to implement the declaration within their institutions; b) those that are attempting to implement the declaration within their institution; and c) those that have incorporated the umbrella principles of the declaration into their own institutional sustainability policy and are attempting to implement that institutional policy rather than the declaration itself within their institution. For the purposes of this paper, we will examine signatories to categories b and c.

Ball State University in Muncie, Indiana, USA, is an excellent example of category b. The university has adopted the Talloires Declaration as its primary environmental policy and is making an attempt to respect its signatory commitments. The university offers only one broad statement relevant to sustainability in the University Strategic Plan (Ball State, 2001), however, as a signatory to the Talloires Declaration in 1999, Ball State is making an attempt to implement the declaration within their institution. The University Green Committee has been asked by the University President to examine the implications of the Talloires Declaration for the university. This committee has divided itself into 9

subcommittees, each being charged with the “examination and development of recommendations for the continued management and/or implementation of one of the Talloires tenets” (Ball State University 2000). A report of the findings of these committees is anticipated to be available at the end of 2001.

Macalester College in Minnesota, USA, has adopted the Talloires Declaration, and has created its own implementation plan in order for the declaration to be meaningful within its institutional context (category c). Macalester College is a unique signatory in that over eleven individuals from the college, representing administration, trustees, faculty, staff, alumnae and students, signed the Talloires Declaration, while most universities have one representative sign the declaration. Becoming a signatory to the Talloires Declaration on May 4, 2000 was a carefully contemplated act for Macalester College. This is demonstrated in the minutes of the Subcommittee on College Environmental Policy Statement of February 17, 2000 which met to develop “an implementation plan that the college would commit to when the Talloires Declaration is signed to assure that the Declaration would be meaningful” before signing the declaration (Macalester College, 2000). The impetus for the creation of the implementation plan came from the Campus Environmental Committee (CEC):

As signatories of the Talloires Declaration, we fully endorse its spirit and aims, while recognizing the need to adapt its specifics to Macalester's situation as a small liberal arts college (Campus Environmental Committee, 2000)

The CEC appointed itself as being the primary committee responsible for implementing the Talloires Principles at Macalester College. The Implementation Plan outlined actions to be taken on campus including the preparation and dissemination of an annual environment report, the creation of a procurement policy within one year of the signing of the Talloires Declaration which recognizes the importance environmental factors in making decisions about purchases, and the appointment of a Director of College Environmental Affairs to work with the CEC to implement the principles of the Talloires Declaration.

Regardless of the CECs attempts to raise awareness of sustainability issues on campus, the Talloires Declaration and the Implementation Plan have been received with indifference within the institution (Romero, 2001). Nine months after signing the Talloires Declaration, the Annual State of the Environment Report was prepared and published, but no procurement policy was created and a Director of College Environmental Affairs had not been appointed. When asked why the university had not yet honoured its commitments, Romero stated “because nobody wants to pay for it” (Romero, 2001). Such challenges need to be examined in more detail and will be revisited in the discussion section of this paper.

Implementing The Halifax Declaration. In a study of the implementation of the Halifax Declaration, Wright (2002) found that the majority of signatory universities made no attempt to implement the declaration within their institution. The few that attempted to implement the declaration incorporated the general concepts and value statements of the declaration into their own institutional environment and sustainability policies rather than use the declaration as the sole sustainability policy for the university.

The University of British Columbia (UBC), for example, mentions the Halifax Declaration in their Campus Sustainability Policy, but created its own institutional policy based on the principles of the Halifax and Talloires Declarations.

As part of its responsibility as an educational and research institution and as a signatory to both the Halifax Declaration and the Talloires

Declaration by the University Presidents for a Sustainable Future, UBC provides leadership by demonstrating the means to a sustainable community on campus. UBC recognizes that just as the university contributes to a healthy society and economy through education to build up social capital, we also need to invest in maintaining the ecological services and resources, our natural capital, upon which society depends (University of British Columbia, 1997).

On the east coast of Canada, Dalhousie University is currently in the process of creating a new environmental policy (replacing the environmental policy of 1994). In light of signing the Halifax Declaration, the Talloires Declaration and the International Declaration on Cleaner Production, the university decided a new policy was necessary. The University Senate Environment Committee is currently facilitating the writing of the document and has relied on both the Halifax and the Talloires Declarations to guide the process. The current draft environmental policy covers issues ranging from promoting environmental literacy, to greening physical operations, as well as committing to provide, monitor and periodically review an implementation plan for the policy that would be subject to regular external audit.

McGill University in Montreal, Canada also refers to the Halifax and Talloires Declarations in its draft environmental policy:

By providing a framework and reference for future action and enabling the University community to clarify and implement the implications of its commitment, the Environmental Policy will make it easier for McGill to meet the institutional obligations that are defined broadly in the Halifax and Talloires Declarations (McGill, 2001).

Implementing The Cre- Copernicus Charter. The literature regarding the implementation of the CRE-Copernicus Charter is limited, an exception being the book Implementing Sustainable Development at University Level (Leal Filho 1995) which contains examples on how the 10 principles of action may be reached. At present however, the Secretary-General of CRE-Copernicus indicates that very little is known regarding the implementation of the Charter. Once universities have become signatories, there is no system for information exchange currently in place (Winkelmann, 2001). While CRE-Copernicus is currently assessing the potential for systematic monitoring of the entire process, the only information that the Copernicus Secretariat has to date regarding the implementation of the Charter is that which is offered on the initiative of individual universities.

One example of a university attempting to implement the principles set forward in the CRE-Copernicus Charter was found, however, in Sweden (Jenstrom 2000). Goteborg University signed the Charter in 1994 and subsequently created an implementation plan based on the tenets of the Charter. This plan covers six basic goals:

- to minimize the harm the university inflicts on the environment;
- to strive to make students and staff conscious of environmental issues through education and training;
- to consider environmental ramifications of decisions made within the university;
- to actively acquire, develop and disseminate knowledge on environmental issues;
- to continuously assess and update environmental policy and programs at the university; and
- to act in compliance with current environmental laws and regulations.

To facilitate the attainment of these goals, the University Board suggested that short-term plans be created to complement long-term goals. The short-term plans for 2000-2002

include a requirement for half of the university staff to attend a course in environmental education, for all academic units within the university to become ISO14001 certified, and for research needs that focus on sustainable development to be identified.

Goteborg University has faced challenges in implementing the CRE-Copernicus Charter.

Some university staff members still say that it can not be a main goal for the University to work actively with Sustainable Development, the Society has to go first. At all universities you have to accept that some staff members will hold a different view. At Goteborg University we try to bypass these staff members and instead activate those that see sustainability as a natural step. We often talk about a bottom-up-perspective where we activate the people at the departments and encourage them to do environmental work that will influence other staff members. This process takes time, but we have to accept that changes in lifestyle are not made overnight (Jenstrom 2000).

Indeed there are many challenges and barriers that have been identified during the course of this study regarding the implementation of sustainability declarations which will be discussed later in the paper.

Implementing The Kyoto Declaration. With regards to the Kyoto Declaration, an understanding of its impact is difficult to understand, as there are no signatories. The Kyoto Declaration was endorsed by all International Association of Universities (IAU) Members and the General Conference of Members meeting in South Africa, August 2000. Included in the text of the endorsed declaration was the IAU Policy Work Plan 2000-2004 which highlights sustainability initiatives universities are asked to embark upon immediately. However, the degree to which IAU universities have initiated the recommendations of the Declaration and Work Plan to date is unknown (Salinas-Meoni, 2001).

It is interesting that this research revealed few universities that are actively engaged in pursuing environmental sustainability which used the Declaration as the institution's sole environmental or sustainability policy. These particular universities have gone beyond the signing of a declaration and have created implementation plans that are specific to their institution, or have used the general concepts of the declaration to create their own institution-specific policies.

The previous examples of universities that have made an attempt to honour commitments to a particular declaration have shown that national and international sustainability declarations have had an impact on some institutions of higher education. A caveat must be offered however, in that in this study many universities were found to have signed national and international declarations and to not have worked towards sustainability in their institutions at all. This raises the issue of accountability in becoming a signatory to a national or international declaration. It seems that some institutions may be signing declarations for public relations purposes only and may not be supporting the overall effort to greening campuses. The ability for universities to greenwash their institutions by signing such declarations is an issue that needs to be discussed and will be returned to at the conclusion of this paper.

Institutional Statements

While many institutions have focused attention on national and international sustainability declarations, some have chosen to take a micro approach to sustainability in higher education by creating institutional environmental sustainability policies that are meaningful for their particular situation.

The University of Waterloo. The University of Waterloo is an example of an institution that has not signed any national or international sustainability declaration, but has created a strong environmental policy and is considered a high profile "best practice" case for sustainability in higher education (Dearden and Mitchell 1998). The terms of reference for the University WATgreen Committee have served as the university policy for 10 years and to date have been very successful (Baker, 1998).

The WATgreen Committee is in charge of implementing the university environmental policy and includes a consortium of representatives from each university faculty, the waste management coordinator, a representative from the student population, and the Associate Provost-General Services and Finance. The responsibilities designated to the Committee are:

- to animate environmental activities on campus and in particular to coordinate the project activities of students, staff and faculty;
- to serve a coordinating and communication role with the University community;
- to raise awareness in the campus community; and
- to develop guidelines for environmentally responsible design practices on campus (WATgreen 1996).

Most of the underlying philosophies that guide the Committee and the greening efforts on campus are similar to those offered in the national and international declarations; however the committee must also work within specified economic parameters (WATgreen 1996). WATgreen's mandate is to take into account both environmentally appropriate as well as financially sound practices. The WATgreen Committee has been very successful in being a leader in sustainability initiatives both within the university and the surrounding community, and has become fully integrated into the operations of the university (Baker, 1998).

The University of South Carolina. The University of South Carolina (USC) is another example of a university that has developed an institution-specific environmental policy but to date has not signed any of the major sustainability declarations directed towards higher education. USC is also a part of the South Carolina Sustainable Universities Initiative, which began with the state's three research universities in 1998. All three presidents signed a "declaration" geared toward cooperation within the state. University administrators felt this would be a stronger statement than signing one of the international agreements.

The USC Environmental Policy, written in Spring of 2000 by the University wide Environmental Advisory Committee, states a moral obligation on the part of the university to become a leader in creating a sustainable society.

The University of South Carolina represents an intellectual community committed to the advancement of theoretical and practical knowledge. Recognizing our role as a positive force in the state's economic and social advancement, we believe it is incumbent upon us to lead the way toward a more sustainable future through our teaching, learning, research, community service and facilities management (University of South Carolina, 1997).

The goals stated in the policy focus on both the educational and physical operations of the university. The policy states that sustainability must be built into the university curriculum and recognizes the need for environmental literacy amongst faculty and staff. It stresses the obligation of the university to the local community and environment, and commits the university to implement an environmental management system for auditing inputs and outputs and quantifying savings from sustainable practices, as well as producing an annual "Environmental State of USC" report.

When asked how the policy was received by the campus at large, however, the Dean of the School of the Environment stated "it is pretty much a secret" (Coull, 2001). Yet Dr. Coull also indicated that passing the policy through the University Board of Trustees was a tremendous accomplishment, and while no implementation of the policy has occurred to date, an implementation plan is currently being created.

The University of Buffalo. The University of Buffalo (UB) has multiple policies relevant to environmental sustainability and the campus. The University's Environmental Task Force (ETF) was created in 1990 with the primary task of developing campus environmental policies (University of Buffalo, 1990). While UB signed the Talloires Declaration in June 1999, many of the university environmental policies were well established prior to becoming a signatory. The university has 15 policies directly related to environmental activities on the campus including an Environmentally Sound Products Procurement Policy, an Electric Purchasing Policy, and the UB2025 Policy which aims to transform the Northern Campus into a diverse, biologically rich and less energy intensive campus. A review of the 15 environmental policies at UB revealed a focus on energy efficiency and consumption issues, and has very little mention of environmental literacy or pursuing sustainability through the modification of curriculum. This focus on physical operations is further illustrated by the UB definition of a sustainable university which states that a sustainable campus is one that has minimal resource consumption, uses 100% post-consumer recycled materials or materials from renewable resources, recycles, and whose energy supplies are totally renewable and non-polluting (UB Green, 2001). While environmental education initiatives might be in place on the UB Campus, it is not a priority in any of the environmental policies.

Difficulty with implementation has been an issue with these environmental policies on campus:

These policies are a step in the right direction. Implementation is another matter! Implementation relies on informed, voluntary cooperation by members of the University. Thus, implementation is uneven. We keep trying! (University of Buffalo, 2001).

The University of Toronto. The University of Toronto also frames its commitment to sustainability through improving their physical operations. The preamble to the university environmental policy maintains a moral responsibility to society to become more sustainable, and implies a need for sustainability education by proposing the need to protect the environment through teaching, research and administrative operations. The specific objectives of the policy, however, focus on exceeding environmental standards, regulations and guidelines. The major objectives concentrate on physical operations and include the minimization of energy use, water use, waste generation, and pollution.

The George Washington University. The George Washington University is a unique case in that it has signed the Talloires Declaration, has a working institutional environmental policy, and has a letter of understanding and agreement with the United States Environmental Protection Agency (EPA) which states that the University will work

with the EPA to develop models and knowledge related to environmental management and sustainability.

A closer examination of the environmental policy indicates that the University takes a moral stance towards sustainability:

The mission of the Green University Initiative at The George Washington University is to commit our resources and expertise in the service of creating an environmentally sustainable future. The University intends to infuse a strong, positive environmental ethic into all of its activities. This ethic is to be fully integrated into the University's education, training and outreach; research, and services activities -- including health care. It is also to be incorporated into all of GW's management and operations activities -- including procurement/acquisition and contractor provided support services. In addition, the University intends to develop its campuses and its facilities into preeminent showcases for environmental management and models for sustainable development (George Washington University, 1996).

The University offers seven principles in the policy which encompasses ecosystem protection, environmental justice, pollution prevention, strong science and data to ensure well informed decisions are made, partnerships, reinventing the university's environmental management and operations, and accountability. Additionally the policy recognizes the need for evaluating and measuring the success of the plan and indicate an intent to develop specific objective performance standards and indicators.

It is impossible to generalize all institution-specific environmental policies examined for this paper; however some noted differences can be found in the foci between national and international declarations and institutional environmental policies. The majority of national and international declarations give token mention to the development of sustainable physical operations within the university. They tend to focus more on the moral responsibilities of universities to facilitate change and the need for environmental literacy. The majority of institutional environmental policies examined in this paper concentrate on a combination of environmental education and sustainable physical operations (Table 2-2). Numerous declarations also call for the development of sustainable practices and programs within universities, yet few offer practical concrete action plans to achieve their goals (the Halifax and Kyoto Declarations being exceptions to this). Most institutional environmental policies reviewed for this paper outline specific actions to be taken within the university in order to realize the sustainability goals and objectives for the institution and often have specific deadlines attached to them.

Does an institution need to sign an international declaration to move along the continuum of sustainability? The individual universities discussed previously are just a small sample of institutions around the world that have taken the idea of sustainability seriously and have created policies which reflect their commitment. Analysis of these policies suggests that being a signatory to a national or international agreement is not a valid indicator of an institution's dedication to sustainability. However, national and international declarations are just as important as institutional policies. Declarations are significant because they symbolize the prominence of the sustainability movement, aid in the communication of major ideas to universities around the world, and implore those who have not committed to any sustainability initiatives to "get on board." Implementation plans and university sustainability policies are also important because they seem to determine the degree to which a university will attempt institutional environmental change and engage in sustainability initiatives. Further research on declarations and institutional policies is necessary in order for the higher education sustainability movement to progress.

Table 2-2: The Focus of Various Institution-Specific Sustainability Policies

Policy Focus on Greening Physical Operations	Policy Focus on Sustainability Education and Greening Physical Operations
<ul style="list-style-type: none">• Queens University• University of Buffalo• University of Colorado• University of Toronto	<ul style="list-style-type: none">• California State University• Carnegie Mellon University• Dalhousie University• Durham University Oxford Brooks University• George Washington University• Lincoln University• Lund University• Massey University• Open Polytechnic of New Zealand• Tufts University• Universidad National Autonoma de Mexico• Université Laval• University of Edinburgh• University of Hertfordshire• University of Manchester• University of South California• University of Sunderland• University of Sussex• University of Utrecht• University of Wales Swansea• University of Waterloo

Identifying Emerging Themes in Declarations and Policies

The question of how various institutions are framing the central task of becoming sustainable universities is not easy to answer. Leal Filho (1999) writes that universities frame their commitments to sustainability in many different ways. In Europe, for example, universities in Spain, Germany and Italy focus more on environmental conservation (recycling programs, transportation issues, sustainable architecture). Universities in the United Kingdom focus more on curricular matters (integrating environmental issues into all disciplines, creating environmental studies course options for students). On an institutional level, universities will have varied approaches depending on their specific situation (Clugston, 1999). While some universities may focus on philosophical issues, others will attempt to redesign curricula or converge on the greening of physical operations.

The cases examined in this paper support Leal Filho (1999) and Clugston's (1999) assertions that approaches to sustainability differ from campus to campus, country to country, policy to policy, and declaration to declaration. Yet there are common principles and themes among the majority of institutional policies, national, and international declarations (Table 2-3). These themes are sustainable physical operations, sustainable academic research, environmental literacy, ethical and moral responsibility, cooperation amongst universities and countries, the development of interdisciplinary curriculum, partnerships with government, non-governmental organizations and industry, and the need for universities to be leaders through personal practice.

Table 2-3: Common Principles of Sustainability in Policies and Declarations

Policy / Declaration	Moral obligation	Sustainable physical operations	Encourage sustainable research	Public Outreach	Inter-university cooperation	Partnerships with government, NGOs and industry	Develop inter-disciplinary curriculum	Ecological literacy
Stockholm Declaration	x			x				x
Tbilisi Declaration	x		x	x		x		x
The Talloires Declaration	x	x	x	x	x	x	x	x
The Halifax Declaration	x			x	x	x		x
The Kyoto Declaration	x	x	x	x	x	x		x
Swansea Declaration	x	x	x	x	x			x
CRE Copernicus Charter	x		x	x		x		x
Thessaloniki Declaration	x			x		x	x	x
Dalhousie Draft Environmental Policy	x	x		x		x	x	x
George Washington University	x	x	x	x		x	x	x
Macalester College Implementation Plan	x	x	x	x	x	x	x	x
McGill Draft Environmental Policy	x	x	x					x
Queens University	x	x						
Tufts University	x	x	x	x	x	x		x
U of Buffalo Environmental Policies	x	x		x				
U of British Columbia Policy	x	x	x	x	x	x	x	x
University of Hertfordshire	x	x	x	x			x	x
University of Southern Carolina	x	x		x			x	x
University of Toronto	x	x		x				
University of Wales Swansea	x	x	x					x
University of Waterloo Policy	x	x	x	x			x	

Sustainable Physical Operations. The theme of sustainable physical operations is expressed generally, but is not of primary importance in the national and international declarations. The Kyoto Declaration, for example, encourages universities to review their physical operations to reflect best sustainable development practices. The Talloires Declaration also calls for more sustainable physical operations, and for higher education to set an example of environmental responsibility by “establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations” (University Leaders For A Sustainable Future, 1990). However, no declaration offers practical actions to implement in order to ensure more sustainable physical operations.

For institution-specific policies, sustainable physical operations are paramount with the majority of policies listing precise tasks for the university to undertake. Sustainable physical operations is mentioned in every institutional policy examined for this paper and is often the main thrust of sustainability initiatives on campus. At the extreme is the University of Buffalo with fifteen different policies focused specifically on physical operations. The University of Swansea, Wales, also focuses on physical operations, informed by both health and safety, and environmental concerns.

Sustainable Research. Another motif that appears in many of the declarations and institutional policies is the encouragement of academic research related to sustainability. For example, Principle 4 of the Kyoto Declaration implores universities to undertake research and action in sustainable development. On an institutional level, the University of British Columbia states that environmentally responsible research that is geared towards sustainability is desirable because it has economic and social advantages and ensures the long term viability of the institution. The University of Waterloo takes a student-centred approach by encouraging student action projects and research on campus and by providing support for student-based sustainability initiatives.

Inter-university Cooperation. Intra- and inter-university cooperation is also a common proposition, but is more prevalent in the national and international declarations than in institutional policies. For example, the Swansea Declaration states that signatory universities must “co-operate with one another and with all segments of society in the pursuit of practical and policy measures to achieve sustainable development and thereby safeguard the interests of future generations” (UNESCO, 1993). The CRE-Copernicus Charter also endeavors to encourage cooperation in their call for sustainability networks:

Universities shall promote interdisciplinary networks of environmental experts at the local, national, regional and international levels, with the aim of collaborating on common environmental projects in both research and education. For this, the mobility of students and scholars should be encouraged (CRE-Copernicus, 1994).

Partnerships with government, non-governmental organizations and industry are also mentioned in most of the national and international declarations, but are discussed less in institutional policies.

Ecological Literacy. Encouraging ecological literacy is a frequent theme in many of the declarations and institutional policies. The Talloires Declaration states that universities must “create programs to develop the capability of university faculty to teach environmental literacy to all undergraduate, graduate, and professional school students” (University Leaders For A Sustainable Future, 1990). Numerous declarations and policies expand the scope of ecological literacy beyond students and recognize the need for environmentally literate faculty, staff, as well as an environmentally literate community. Principle 4 of the Halifax Declaration states that universities must “enhance the capacity of the university to teach and practice sustainable development principles, to increase environmental literacy, and to enhance the understanding of environmental ethics among faculty, students, and the public at large” (Lester Pearson Institute For International Development, 1992). The CRE-Copernicus Charter also alludes to ecological literacy stating that universities must incorporate “an environmental perspective in all their work and set up environmental education programmes involving both teachers and researchers as well as students — all of whom should be exposed to the global challenges of environment and development, irrespective of their field of study” (CRE-Copernicus, 1994). On an institutional level, the University of South Carolina environmental policy outlines how the university will facilitate ecological literacy amongst faculty, students and the community through training workshops, professional meetings, speakers, seminars, symposia, faculty knowledge exchanges and indicators of success.

Developing Interdisciplinary Curriculum. Related to the theme of environmental literacy is the notion of developing interdisciplinary curriculum. Principle 7 of the Talloires Declaration directs deans and environmental practitioners to develop curricula for an environmentally sustainable future. Dalhousie University’s Draft Environmental Policy encourages the inclusion of environmental concepts and principles into all curricula.

Moral Obligation. Perhaps the unifying theme among all declarations and policies is the ethical and moral responsibility of universities to be leaders in promoting sustainability. One of the best examples can be found in the CRE-Copernicus charter which incorporates the general tone of all of the documents examined thus far:

Universities and equivalent institutions of higher education train the coming generations of citizens and have expertise in all fields of research, both in technology as well as in the natural, human and social sciences. It is consequently their duty to propagate environmental literacy and to promote the practice of environmental ethics in society, in accordance with the principles set out in the Magna Charta of European Universities and subsequent university declarations, and along the lines of the UNCED recommendations for environment and development education (CRE-Copernicus, 1994).

The emergence of themes that span the declarations and institutional policies suggest that there are certain priorities for sustainability in higher education. By identifying the themes, we are able to get a better understanding of how institutions frame their commitment to sustainability and to understand future initiatives. These themes and priorities will change and grow as institutions and organizations re-frame their understanding of sustainability.

Conclusion

Throughout the world, there are numerous examples of institutions of higher education pursuing environmental sustainability. Some institutions believe that they will meet the challenge of sustainability through the signing of national or international declarations while others create individual institutional policies. Regardless of how a university approaches its commitment to sustainability, there are foundational themes that exist in both macro and micro approaches to sustainability. These themes include sustainable physical operations, sustainable academic research, environmental literacy, ethical and moral responsibility, cooperation amongst universities and countries, the development of interdisciplinary curriculum, and partnerships with government, non-governmental organizations and industry.

By gaining an understanding of these themes, we are able to identify how sustainability is conceived of in higher education. This paper is limited, however, in that it has only explored institutions that are attempting to affect change. To develop a richer understanding of how sustainability is conceived of in higher education, an examine of institutions that have not signed any declarations, have not created institutional policies and have not engaged in any sustainability initiatives would be required.

In addition to identifying themes, this paper also highlighted many other issues that should be explored for a better understanding of the influence declarations and institutional sustainability policies have on higher education. There is a current gap in knowledge and information regarding the degree of implementation for national and international declarations within specific institutions, as well as an understanding of what challenges and opportunities universities have faced during attempt at implementation. A critical step to promoting sustainability in higher education involves developing a clearer understanding of how declarations are implemented in institutions as a whole, rather than solely reporting on "best practice" cases. It is also imperative to acknowledge failures and learn from the past to avoid similar mistakes in the future. Further, it is pertinent to explore if the creation of declarations is merely a public relations exercise or if such documents can truly affect change? Finally, if a university creates an institution-specific environmental policy, what measures are in place to ensure that it is implemented?

Issues of accountability and efficacy of the various declarations are beyond the scope of this paper, but have largely been ignored in the literature and warrant further contemplation.

The number of institutions that are signing national and international sustainability declarations and creating their own policies and implementation plans is growing. This suggests that on some level, sustainability declarations and policies are useful to many institutions and capable of facilitating some change. This paper has helped to illuminate what is happening in the field with national and international sustainability declarations and institution-specific sustainability policies, and has helped to clarify the key priorities which these documents address as well as identify the gaps. Finally, it is my sincere hope that this document will help leaders in higher education to plan for future declarations and policies and to aid universities in continuing their travels along the continuum of sustainability.

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Chapter Three

Barriers on the Path to Sustainability: European and Canadian Perspectives in Higher Education

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Introduction

The term sustainability infiltrates our society through government documents, mainstream media, corporate newsletters, and international agreements. The word itself has many meanings, and many critics. In higher education, the term has been used to promote the continuance of the current political, economic and bureaucratic systems. It has also been used, however, to describe a positive movement to becoming more socially and environmentally responsible institutions. It is this later spirit of the term that we would like to discuss.

Universities and other institutions of higher education need to practice what they teach. This goes from concepts of ethics and social behaviour, to principles of gender and equity. Among the issues universities need to pay attention to, the subject matter of sustainability deserves a special emphasis. This is because sustainability not only encompasses the above matters of ethics and social behaviour in a holistic way, but also because sustainability entails good management and catalyses good academic practice.

The road to sustainability is not even. To pursue the path to sustainability in a meaningful way, there are various elements that need to be considered and a number of matters to be taken care of, from proper planning, to appropriate methods for monitoring progress and measuring success. While maintaining the status quo is usually quite simple for universities, becoming more socially and environmentally responsible is not easy given the current framework and mandate of the modern university.

In this paper we explore the challenges and barriers universities face when navigating the path to sustainability. The purpose of pursuing this question is to gain a better understanding of the issues encountered when implementing sustainability initiatives within a higher education context. This study is informed by Clugston (1999) who indicates that one of the major priorities in current sustainability research is to conduct in-depth research and evaluation of initiatives in environmental education and sustainability, and to analyze specific case studies for critical conditions that determine the success of initiatives. We feel that it is equally important to examine the barriers to the implementation of sustainability initiatives. The paper is also influenced by Leal Filho (2000) who indicates that researchers must get beyond theoretical discussions of sustainability and make an attempt to better understand specific challenges individual university's face (p.17).

In this paper, we review literature related to the challenges to traveling the path to sustainability in higher education and offer example cases of barriers from European and Canadian perspectives. This approach will be useful for readers to better understand and identify the challenges and issues universities currently encounter in pursuing sustainability.

Traveling the Path to Sustainability

Becoming an environmentally responsible university involves change. This can be a confusing matter, as the term change is ubiquitous, but somewhat vague. Myers (1990) conceptualizes change as both an altered state and a process. Additionally, Myers claims that there are many forms of change including evolutionary, revolutionary, cyclical, retrogressive or catastrophic, which can make a single definition difficult. Definitions of change are further confused by similar terms used in educational research such as paradigm shift (Ferguson, 1980), educational renaissance (Cetron, 1991), and educational reform (Fullan, 1991). For this paper, we have defined change in the context of sustainability in higher education. In this light, change is positive institutional reform for the purpose of improving the environmental performance of the university.

While universities are often viewed as stagnant bureaucratic institutions, there are many universities that have been able to at least start along the path of sustainability. In Canada, there are numerous examples of universities that have become more environmentally responsible institutions and have attempted to effect positive environmental change in their communities and regions. The University of British Columbia, for example, developed an environmental policy, a sustainability policy and created a Campus Sustainability Office (CSO) in 1998 to oversee the implementation of these policies and to promote the tenets of sustainability. The CSO has been successful in its efforts, and claim that their initiatives are already “bearing fruit”. For example, while the population of the University campus has increased, energy use throughout campus has decreased as a result of educational programs and equipment retrofits. The CSO still faces challenges such as decreasing paper use within the university which has proven to be a difficult goal to reach.

Mount Allison University is another example of a Canadian University attempting to become more sustainable. Many of the sustainability efforts within this institution have been initiated by students. The student Blue-Green Society, for example, provided the impetus and much of the work to complete a University Environmental Audit.

Efforts toward sustainability in higher education have not all been the work of individual universities. In Canada there are many regional and national organizations that support sustainability initiatives in education. The Sierra Youth Coalition, a youth-run branch of the Sierra Club of Canada, has initiated the Sustainable Campuses Project that aims to network university students from across the country in their campus environmental efforts. Educational organizations such as the Association of Universities and Colleges of Canada have also made attempts to promote campus sustainability efforts through a few publications, although has no formal program or advisory board dedicated to sustainability has been formed to date. Various government departments have been pivotal in encouraging sustainability in Canadian universities, including a University President’s Workshop titled “Learning and Sustainability” and a publication titled “Green Guide: A User’s Guide to Sustainable Development in Canadian Colleges” (1992) by the National Round Table on Environment and Economy and Environment Canada which conducted a National Consultation on Environmental Education and Sustainability in

2000/01, and a subsequent National Strategy on Environmental Education and Sustainability which includes recommendations for colleges and universities.

Efforts toward environmental change and sustainability in European universities are a little more difficult to discuss due to different government and institutional structures. The following is a brief overview of what some European countries and universities have accomplished to date.

In the Netherlands there are various initiatives in the field of sustainability occurring, from networking (organized by VSNU, the Association of Dutch Universities) to a sustainable development platform whose members are universities. Finland, the world's most sustainable country according to the 2001 World Sustainability Index, has substantial funds invested in regional projects where sustainable development considerations are integrated in planning. Sustainable development issues are found in teaching and research programs in the majority of universities. While Germany was slow at the beginning, the debate on sustainability has evolved noticeably over the past four years. Initially limited to the area of environmental protection and to matters related to energy saving and emissions, universities now are actively pursuing the goal of sustainable development. In Hamburg, for example, universities can draw funds from a "sustainability fund" for projects that involve sustainability and higher education.

Many European universities are encouraged by governments to pursue issues related to sustainability. In Denmark, for example, the Ministry of Education and the Ministry of Environment act jointly in the development of sustainability programs in universities, but the focus is on technical aspects of sustainability, as opposed to philosophical ones. In this context, Denmark Technical University in Lundby is especially active. Another example is Belgium, where different efforts are seen in the French and Flemish speaking areas of the country. The Belgian Ministry of Education supports initiatives at universities and noticeable efforts are seen at the Free University of Brussels and the Catholic University of Leuven (UCL). The Swedish government's decision to certify all public institutions (including universities) by 2004, has led to a wave of activities in respect to "greening universities" with positive outcomes. The first European university to be certified under the EMAS (Eco-Auditing and Management Scheme) was the Mid-Sweden University, but many others have followed since.

The above outline of action taking place in different institutions in Canada and Europe show that much has been done in advancing the cause of sustainability in higher education. However, there are many cases in which little action is seen. In France, for example, discussions on sustainability are limited to a few universities. The popular "Centres of Initiation to the Environment," which spread across the country, try to bring sustainability-related messages to the general public and seem to do more work in the area of sustainability than the universities. Wright (in-press) also identifies Canadian universities that have formally declared a commitment to becoming more sustainable, yet have made no progress in achieving this goal. While challenges may be different for each university, there are some common barriers to success outlined in the next section.

Roadblocks Along the Path to Sustainability

At this point we offer a caveat to the readers. In this section, we outline the various challenges to creating environmental change within higher education. An understanding of these challenges has emerged from the literature, our own experiences, and multiple discussions with colleagues. When we began writing this paper, it was our aim to offer examples of universities in both Canada and Europe that experienced these challenges. Finding individual institutions that were willing to be highlighted in the paper, however, proved to be a very difficult process. The literature on sustainability in higher education

offered few examples of challenges and barriers to change as most universities reported on “best cases” and were subject to the objectivity of the author. When speaking with individuals within universities that had experienced challenges in pursuing sustainability, we found that most did not want to “air their dirty laundry” or report on the personal battles of the process because of politics within their institution. While we know that there is a long list of universities who have encountered both internal and external challenges in becoming more environmentally responsible and sustainable, we are currently only able to report on the challenges and barriers universities face along the path of sustainability in a more general sense.

Themes regarding the challenges and barriers to sustainable and environmental change within universities in the literature include governance issues (Allen, 1999; Keniry, 1995; Leal Filho, 2000; Smith, 1993), issues of advocacy and leadership (Allen, 1999; Cortese, 1992; Orr, 1990; Keniry, 1995; Wood, 1990), communication issues (Gilbert, 1996; Leal Filho, 2000; Smith, 1993), economic challenges (Keniry, 1995; Leal Filho 2000; MacTaggart, 1996; Smith, 1993), and policy issues (Wright, in-press).

Governance Issues. There are many issues related to governance within a university which present challenges along the path of sustainability. From a Canadian perspective, universities are influenced by external forces. All Canadian universities derive their powers from provincial legislation and are considered to be legal corporations (Hardy, 1996). While Canadian universities are considered autonomous institutions critics question this notion (Hetherington 1965; Hardy 1996; Jones 1996). According to Hetherington (1965), the complete autonomy of a university would require the institution to be completely financially independent. In Canada, however, universities rely on operating grants from their provincial or territorial government in order to finance the activities of the institution. In fact, provincial operating grants are the largest source of revenue in the budgets of almost all Canadian universities (Jones 1997). Hardy (1996) adds that all programs within Canadian universities must be approved at the provincial government level for funding to be awarded, which furthers the argument that these institutions may not be as autonomous as they claim to be. Such external influences can have a profound effect on the way an institution approaches sustainability issues.

Almost all Canadian universities have developed a bicameral governance structure. A Board of Governors represents government and other interests (commonly alumni and students) and is charged with the operation of the university including administrative and financial matters. A senior academic decision-making body (often called the Senate or the General Faculties Council) is responsible for all academic matters including student discipline academic appeals, and approving faculty, tenure and promotion appointments and programs of study presented by faculties. The President of the University is considered the Chief Executive Officer and is responsible to the Board of Governors and the Senate for supervision of both the academic and administrative work of the university. This system of governance often makes it difficult for policies regarding sustainability to be adopted as the academic governance bodies often have completely different agendas than the operations bodies who are often concerned with the bottom line of finances.

In Europe, most countries have a centralized funding system in the context of which the budgets for universities are administered by the Ministry of Education. Budget allocations are made once each year, or in some cases every two years. The basic funding covers operating costs and personnel, but university personnel are increasingly being pressured to pursue other funding venues to support non-basic activities. This state of affairs is reflected in the emphasis given to sustainability initiatives within the university. The problem that often exists is that not all university administrators regard sustainability initiatives as part of the role of the university. Limited funding, therefore, is often used to support conventional activities.

In an attempt to measure the degree of pressure universities face in terms of governance and sustainability issues, an on-going study on the state of the art of sustainability in the Baltic sea region in the context of the project BUSS (Baltic Universities Sustainability Survey) is being undertaken. The results so far obtained indicate the following:

- a) national funding to sustainability-related work at universities is very limited;
- b) most universities do not have access to such national funds, which means that only a few of them ever manage to gather support for initiatives such as curriculum greening, research projects, etc.;
- c) most university personnel are not fully aware of possible (national and international) funding sources; and
- d) complicated procedures in the application process and uncertainty on the outcomes inhibit many applicants from trying to obtain external funding.

An underlying feature of the BUSS study is that funding for sustainability work is being reduced to such an extent, that higher education institutions have to rely more and more on funds provided by the European Union (EU). Yet, most institutions do not feel able to meet the complicated procedures in application which would allow them to draw from these EU funds.

An exception to this reality is seen in the Netherlands, where a government-funded Platform for Sustainable Development provides cash and in-kind support for sustainability-related work in the country's higher education system. A further exception is seen in Hamburg, Germany where the Ministry of Science established a "sustainability fund" in 1998 to which Hamburg's seven universities may apply for funding. The results shown by both programmes indicate that, whenever available, financial support is usually translated into good work.

Advocacy and Leadership. According to Allen (1999), advocacy supplies the impetus for change within an institution. Advocacy is generally a grassroots activity, although one should not exclude the notion of top-down initiatives from administrators. In fact, advocacy is often most effective when the top down and bottom-up initiatives converge in the middle. Cortese (1992) states that advocacy usually results from a concerned individual or small group, rather than a large contingent who is concerned with a particular issue. Advocates can include parents, alumni, donors, students, faculty, staff and administrators. Additionally, Allen (1999) posits that institutional environmental change is often promoted by an individual or a group of individuals who are not associated with the governing structures of the university, but rather somewhere on the peripheries. A lack of advocates and advocacy can present a significant barrier to sustainability.

Leadership is also pivotal to sustainability and institutional environmental change (Keniry, 1994; Orr, 1990; Rainsford, 1990; Riggs, 1997; Smith 1993; Wood, 1990), as well as a common barrier (Allen 1999; MacTaggart, 1996; Perrin, 1992). Leadership can involve one charismatic leader, or a team of leaders in the form of a guiding committee. The leader(s) must have power within the institution or access to power in order for change to occur (Lane 1990). The endorsement of key administrators within the university is therefore critical to the sustainability effort (Allen 1999; Clugston, 1999; Gittel, 1981, Keniry, 1995). Keniry (1995) claims that executive staff play crucial roles in stewardship initiatives, forging of partnerships, and making personal commitments to sustainability.

Communication Issues. Ali Khan (1995) considers communication a critical factor in promoting sustainability within the university community and discusses current challenges including:

- Awareness: there is a current need for a broader understanding of sustainability among university staff, especially at the senior (management) level;

- Consensus - there is a need for a broader consensus amongst university staff and students as a whole, but also among public, government and business in particular, especially in relation to the need to move with some urgency towards more sustainable lifestyles if future generations are to enjoy quality of life;
- Understanding - all people are directly affected by sustainable development issues but while awareness of these issues is considered to be high in some sectors, it is not so in others. Indeed, generally speaking, the level of understanding of these issues and of their significance and relevance is relatively poor, even in industrialized nations;

Additionally, in a discussion of the misconceptions associated with the concept of sustainability, Leal Filho (2000) describes false notions that could potentially pose an obstacle to pursuing sustainability. For example, there exists a concern amongst many individuals within higher education that sustainability has no scientific basis. While Leal Filho disputes this notion and gives evidence to the contrary, this lack of understanding regarding the term sustainability is a significant barrier in higher education.

Economic challenges. Economic barriers are key in affecting sustainable change within individual universities. Allen (1999) argues that for change to be successful, a continual supply of monetary and staff resources must be guaranteed. Cerych & Sabatier (1986) state that personnel are perhaps the key component to effective institutional change, as they have the ability to organize and "fix things." Allen (1999) further purports that adequate space for work is an important factor in affecting change.

Space resources are related to human resources: the change movement must have a place from which to operate on campus, and cannot end up in a basement: it should be in the main administration hall (Allen, 1999).

Financial resources within most universities, however, are often scarce. The challenge for those working in the area of sustainability and higher education is to find money in a current climate of fiscal restraint. This is further hindered by what Orr (1995) calls the "business of education." The current trend in many Western universities is towards a business model of higher education where students are viewed as clients and where competition is encouraged. In such an atmosphere, short-term thinking seems to supercede long-term visions. Finding monetary support for sustainability initiatives, which might undermine university profits in the short term, but significantly effect the environment in the long term, can be daunting

Policy. The literature on university sustainability suggests that institutional policies regarding institutional environmental change be developed (Keniry, 1995; Smith, 1993). Kraft (2001) indicates that policies often are good statements of the intentions of a university. However, Wright (in-press) states that while policies are a start in the right direction, they are not truly effective until there are implementation and accountability processes built in. Policies can be used as public relations documents and never be substantial or realistic enough to solve environmental problems on campus. Therefore, while policies may be an asset on the path to sustainability, many can also present additional challenges.

It is interesting to note, that the majority of universities that engage in environmental sustainability initiatives seem to have been able to overcome these barriers presented by governance, leadership, communication, economic challenges, and policy (Wright, in-press). When the above list of barriers are reversed, one can see the common institutional factors that influence the successful implementation of environmental sustainability issues. A group that is able to gain power in the governing structures of the university, for example, is more able to effect institutional environmental change. Many institutions have created positions of Environmental Officers and Sustainability Initiative

Coordinators (e.g. University of British Columbia). These universities have experienced much success in implementing sustainability programs and policies due to the leadership role of the officer or coordinator. Universities that have created financial plans to cover the costs, and anticipate the savings from environmental initiatives and conservation programs have also been more successful in the implementation of environmental sustainability initiatives on campus.

Proceeding with Caution and Finding New Routes

This paper has discussed the many challenges and barriers a university may face and the structural problems they have in pursuing the path towards sustainability. It has found that issues of governance, advocacy, leadership, communication, economics and policy can have a significant impact on a university's ability to effect change. In order for universities to travel further down the path, however, it is of fundamental importance that researchers and practitioners begin to seek solutions to the challenges and barriers they face. While a full discussion of such solutions is beyond the scope of this paper, we offer a few suggestions, noting that more work in this area must be pursued.

On a societal level, good environmental governance is an essential component to sustainability in higher education as it has the ability to influence the individual efforts of universities to become more sustainable. Environmental governance refers to the laws, policies and institutions through which a society manages its environment. It is an important component of sustainability, and can only be achieved through compliance with laws and regulations governing the protection of the environment. Good governance will only be successful if citizens are provided with the necessary information relevant to environmental activities in their country, so that they are in a position to make intelligent claims and decisions about environmental issues, hence influencing the decision making for the benefit of the nation. Good governance, which may apply to a whole country on a macro context but also to individual institutions on a micro level, is therefore an important tool for sustainable development, being closely linked to environmental education and information.

On an institutional level, we believe that more funding must be made available to encourage universities to engage in environmental and sustainability research and practice. In Canada, major national funding agencies such as the Social Sciences and Humanities Research Council of Canada and the Natural Science and Engineering Council of Canada should be encouraged to make specific funds available for university sustainability research.

In Europe, EU funding provided within the context of the 5th and 6th Framework Programs should be matched by national funds, so that a sense of balance is reached. Also, the North-South divide whereby northern European countries invest more time and resource on sustainability projects than their southern counterparts is a problem that needs to be addressed. Additionally, universities and governments should have incentive and recognition programs in place to encourage work that makes a university more sustainable.

A potential solution to overcoming past problems with policies is to develop policies with open consultation in the university community. Policies must be accompanied by implementation plans and clearly state which individual(s) within the university community will be accountable for implementation. Further, policies need the full endorsement of leaders and administrators within the university, which will complement the ground work done by the teaching and administration staff.

To strengthen sustainability initiatives within the university, it is important to encourage individuals to have a better understanding of the importance of sustainability in higher education. Within the university this could involve the distribution of materials, information sessions and public panel discussions. On a national level, this could include the creation of institutions such as a "National Task Force for Sustainability in Higher Education" and the organization of annual meetings of university Rectors and Presidents with the specific goal of sharing information and encouraging university cooperation. This has happened on an ad hoc basis in the past, but needs to occur more systematically in the future.

The path to sustainability will never be an easy road to travel. This paper provides a stepping stone of understanding along the path, and urges other individuals to pursue and continue work in finding solutions to these challenges in the future.

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Chapter Four

The Effect of the Halifax Declaration on Canadian Signatory Universities: A Tenth Year Anniversary Retrospect

Introduction

In 1991 sixteen Canadian universities adopted the Halifax Declaration (HD) at the Conference on University Action for Sustainable Development (CUASD) in Halifax, Nova Scotia. This Declaration recognized the leadership role universities could play in a world at serious risk of irreparable environmental damage. Additionally, the HD asserted that universities must be challenged to re-think and reconstruct their environmental policies and practices in order to contribute to environmental sustainability on local, national and international levels. The year 2001 marked the ten-year anniversary of the HD. In an era where environmentalists and critics are purporting that major environmental and sustainability declarations from the past decade are far from being realized, this study endeavors to document the environmental initiatives resulting from the HD at signatory universities, and examines the extent to which the HD encouraged universities to re-think and reconstruct their environmental policies and practices.

Declarations for sustainability in higher education have been in existence for over 30 years (Wright, in-press). While there is much information as to which institutions have signed these declarations, there is a current gap in knowledge of the degree of implementation of the commitments made by the universities outlined in such documents. A critical step to promoting sustainability in higher education must involve developing a clearer understanding of how sustainability declarations are implemented in institutions as a whole, rather than solely reporting best practice cases. Only when we understand the challenges, successes, and failures universities face in becoming more sustainable, can we move forward along the path of sustainability.

This study examines the background and the implementation of the HD, and discusses the implications these findings have for institutional environmental change and environmental declarations in Canadian Universities.

The Conference on University Action for Sustainable Development

The Halifax Declaration was a direct result of the Conference on University Action for Sustainable Development in Halifax, Nova Scotia, Canada, December 9 - 11, 1991. The conference was sponsored by Dalhousie University, the Association of Universities and Colleges of Canada, the International Association of Universities, and the United Nations University. There were approximately 89 participants present at the conference which included university presidents, administrators, faculty, students, and officials from all levels of Canadian government, non-governmental organizations and the business community. Participants also represented a wide range of nationalities, including representatives from Tokyo, France, Zimbabwe and Brazil, however the majority of participants were Canadians representing all of the provinces (less Saskatchewan). Participants were invited to the conference based on their interest in issues concerned with sustainability, or previous experience in environmental education and sustainability activities.

The principal goal of the conference was to consider the role universities could play in improving the capacity of countries to address environment and development issues, and to discuss the implications the Talloires Declaration had for Canadian Universities.

The Talloires Declaration was the first statement made by university administrators of a commitment to sustainability in higher education. The Declaration stated that "university heads must provide leadership and support to mobilize internal and external resources so that their institutions respond to this urgent challenge" (UNESCO, 1990, p. 2). It was the result of a conference held in Talloires France of presidents, vice-chancellors, and rectors from universities around the world. The Declaration was signed by all 20 universities represented at the conference who left with a directive to encourage colleagues who were not present at the conference to sign the Declaration and join administrators in their efforts.

Sessions during the Conference on University Action for Sustainable Development included panel discussions on the implications of sustainable development for university leadership, strategic steps for university sustainable development action, and workshops designed to address how universities could support sustainable development activities. During these sessions, one group met with the expressed desire to create a declaration that reflected the ideas discussed at the conference. This was not a spontaneous meeting, but something that had been planned for some time by the conference planning committee:

From the very beginning, the organizing committee for this conference felt that some document should come from this meeting. It should not compete with the Talloires Declaration, nor endeavor to say the same things in finer fashion, but should be the initial expression of concern of those who participated here (Lester Pearson Institute, 1992, p. 138).

The result of this group meeting was the HD, which was presented to participants on the final day of the conference. The HD stated that universities must take a leadership role in affecting environmental change, and challenged universities to re-think and reconstruct institutional environmental policies and practices, and to contribute to environmental sustainability at local, national and international levels. Accompanying the declaration was an Action Plan that outlined short-term and long-term goals for signatory universities, and identified frameworks of action for institutions. The Action Plan was intended to provide a clear sense of direction for signatory universities, and included key core activities universities should engage in to implement the HD within their institutions. Areas covered by the Action Plan were public outreach measures, the encouragement of inter-university cooperation, the development of partnerships with government, non-governmental organizations and industry, and programs to increase the environmental literacy of the university community (Wright, in-press). Specific activities included creating programs that would increase environmental literacy amongst faculty, students and the public at large through the development of local, regional, national and international environmental education programs; sponsoring prizes in sustainable development for students, faculty and staff; approaching national media services to identify practical ways the university could contribute to sustainable development; establishing and/or linking to a national university network focused on sustainability; and preparing an advisory paper to encourage and guide faculty and students on how they might link their research to the goals of sustainability.

At the conclusion of the conference, leaders from sixteen Canadian universities (Carleton University, Dalhousie University, McMaster University, McGill University, Memorial University, Mount Saint Vincent University, Queen's University, Saint Mary's University, Trent University, Université de Moncton, Université de Montréal, University of Calgary, University of Manitoba, University of New Brunswick, University of Western Ontario, and York University) declared their university's commitment to becoming more sustainable and endorsed the HD. Each university representative was asked to become a HD Ambassador within his/her institution and charged with the responsibility of ensuring that

the HD was implemented. This study takes a 10 year anniversary retrospective look at the HD so to understand whether the HD had the impact on signatory universities that the original Declaration authors hoped it would. This paper includes an examination of the degree to which initiatives outlined in the HD were implemented at signatory universities, an examination of emerging patterns in the implementation of initiatives, and a discussion of the extent to which the HD encouraged universities to re-think and reconstruct their environmental policies and practices.

Methods

Three main methods were used in this study: questionnaire distribution and analysis; informal telephone interviews; and document research and analysis.

Questionnaire. A questionnaire was designed and used to understand if the environmental initiatives listed in the HD Action Plan were implemented at signatory universities, as well as to gain insight into the effect the HD had on universities to re-think and reconstruct their environmental policies and practices. The use of a questionnaire was chosen as an appropriate data collection tool in order to efficiently access a large number of individuals over a wide geographical area. The questionnaire consisted of forty questions based on the initiatives listed in the HD Action Plan. The questionnaire was designed for open-ended and closed-ended responses. Closed-ended questions were used for the purpose of quantitative analysis (respondents could answer “yes”, “no”, or “don’t know” to the existence of specific initiatives). Open-ended questions allowed respondents to explain their answers to each closed-ended question.

Questionnaire participants were purposively selected from each of the 16 signatory universities. Universities that adopted the HD after 1991 were not included in the study as the research studies the effect of the Declaration on institutions that had been signatories for 10 years. Each university was sent four questionnaires in total. One copy of the questionnaire was sent directly to the President's Office at each university. Another copy was sent to the university representative at each university who attended the Conference on University Action for Sustainable Development (CUASD) and endorsed the HD on behalf of their institution (often a vice-president or dean). If phone calls and emails to the institution revealed that this individual was no longer present at the signatory university, a letter was sent to the replacement. Two more copies of the questionnaire were distributed at each university to individuals who had attended the CUASD as a representative of their university. If there were no individuals at the university who met this criteria, the final two copies of the questionnaires were sent to individuals who were familiar with environmental policies and initiatives on their campus. These individuals were identified with help of the Environmental Studies Association of Canada (ESAC) and the University President's Office at each signatory institution. A total of 64 individuals were contacted. Each questionnaire was mailed with an information letter and a stamped return envelope. Follow-up calls and emails were made to those who had not returned their questionnaire within 3 weeks. Returned questionnaires were aggregated for each institution.

Interviews. Eighteen informal interviews with key representatives at each signatory university were used to add validity to the data collected regarding which environmental initiatives were implemented at signatory universities as a result of the HD, and to better comprehend how the HD had helped universities re-think and reconstruct environmental practices and to take action towards becoming more sustainable institutions. Interviews were considered beneficial as they allowed for in-depth probing of issues. Interviewees were purposively selected because of their involvement in their university becoming a signatory to the HD, or because of their involvement with the implementation of environmental initiatives at their university. Interview participants included 3 university

presidents, 4 vice-presidents, 3 chairs of environmental studies and science departments, 3 directors of facilities management, and 5 individuals within the institution that were present at the CUASD.

Document Analysis and Archival Research. Document and archival research was conducted in order to add validity to the results obtained through the interviews and questionnaires, and to gain a better understanding of the situation at each signatory university. Documents regarding each signatory institution were obtained through registrar's offices and webpages as well as through inter-library loan. These documents included university calendars, brochures on environmental programs, minutes of various university environmental committees, annual reports, and books on the history of various universities.

The Individual Response

Each university (Table 4-1) returned at least one of the four questionnaires distributed to their institution. However, many of the questionnaires were not completed by the individual who was originally sent the questionnaire. A large number of University Presidents forwarded their survey to other administrators, staff or faculty within the university whom they felt were more able to answer the questions posed in the questionnaire. In one case, the survey was sent to a retired faculty member. On another occasion the individuals contacted at one university combined their knowledge and returned only one questionnaire. In total, 31 questionnaires were returned, for a response rate of 48% which exceeds the requirements of a response rate of 25% to 40% for this type of research (Glesne, 1999).

Table 4-3: Rate of Questionnaires Returned by Signatory Universities

University	President/ Administrator	Faculty	Staff	Institutional Rate of Return (%)
Carleton	1	3		100
Dalhousie	1	3		100
Trent	1	2		75
Calgary		1	1	50
McGill	1	*1		50
Montreal	1	1		50
Mount Saint Vincent	1		1	50
New Brunswick		1	1	50
Western	1		1	50
York		2		50
Manitoba		1		25
McMaster		1		25
Memorial		1		25
Moncton	1			25
Queen's			1	25
Saint Mary's			1	25
Total	8	17	6	

* one questionnaire completed by a number of individuals who combined their efforts

A disturbing trend was revealed early in the analysis of the questionnaires. It was found that 13 of the total 31 returned questionnaires (41.9%) displayed the answer “do not know” for each of the 40 questions posed in the questionnaire. Of those 13 questionnaires, 8 were returned by university administrators (president’s, vice-president’s, deans), 3 by faculty members, and 2 by staff. Many of these respondents indicated that they had heard of the HD, but possessed no knowledge of its implementation. One respondent stated:

“I don’t have time to look up the answers to these questions for you. My university doesn’t value work in this area, and it does not seem clear to me how the Halifax Declaration has had any impact on our university”
(Respondent #18).

Other respondents took an interest in the study topic, although few respondents had immediate answers to the questions. However, many of the questionnaire respondents put considerable effort into answering the questionnaire. This was apparent from telephone calls made to the primary investigator by the respondents, the reflections offered in the open-ended response questions, the inclusion of supplementary materials about their university sustainability initiatives, and requests to be sent the final results of the study.

The return of 13 questionnaires with “do not know” answered for each question posed, however, resulted in a data set skewed in the direction of lack of knowledge regarding the implementation of the HD in signatory universities. While disappointing, this is a very interesting result and valid to the discussion of how the HD influenced signatory institutions.

41.9% of respondents, who were purposefully selected either because of their position as the President of a signatory university, or for previous involvement with the CUASD or HD, or for knowledge of environmental policies and initiatives on campus, had no knowledge of how the HD had been implemented within their institution. Further, all of the administrators who returned questionnaires in this study answered “do not know” for each question posed.

The literature regarding environmental sustainability in higher education stresses the need for administrators to be leaders in the development and implementation of environmental policies and programs in order to ensure continued success (Allen, 1999; Clugston, 1999; Lane, 1990; Keniry, 1995). Additionally, it is important for the university community to be aware of the various environmental policies and programs on campus. If the case of the HD is congruent with the literature, these result suggest that the implementation of the HD was most likely not successful. Such a claim, however, warrants further analysis.

Did the 16 Signatory Universities Implement the Halifax Declaration?

One of the key objectives of this study was to determine the extent to which the 16 signatory universities had implemented the initiatives outlined in the HD. The individual responses to the questionnaires suggested little knowledge of the influence the HD had on signatory universities. The questionnaires were compiled into individual institutional responses (i.e. the 4 responses from Carleton University were combined into 1 university profile). It was found that more information was necessary in order to determine which initiatives from the HD had been implemented. Some institutions had “do not know” responses answered for every question, while other institutions had conflicting responses when comparing individual questionnaires for one university (e.g. one respondent said

that an initiative was implemented at the university while another respondent from the same institution said that it had not). To gain a better understanding of the initiatives that were implemented at each signatory university, questionnaires were supplemented with additional information from document analysis, and informal interviews.

This study found that few of the 40 HD initiatives examined had been implemented in the majority of original signatory universities. The highest rate of implementation in one university was 19 of the 40 initiatives examined (47.5%), with the lowest rate of implementation as 1 out of 40 (2.5%). The mean rate of implementation of initiatives was 5 out of 40 (12.5%). Because of an assurance given to questionnaire and interview respondents that only aggregate data would be reported as a result of this study, this paper cannot report the degree to which each individual signatory university implemented the initiatives listed in the HD. Nonetheless, I will discuss the degree to which the initiatives were implemented in the 16 signatory universities as a whole.

Few of the initiatives that were implemented were common amongst the signatory universities. Of the forty environmental initiatives the questionnaire examined, there were only three activities that had been implemented in over half of the 16 signatory universities (Table 4-2).

Table 4-2: Activities Implemented Among the 16 Signatory Universities

Activity	Number of signatory universities that implemented activity
Public forums for awareness and information exchange, education, and public debate	10
Programs and initiatives related to environmental education and/or environmental literacy	9
Collaborative environment and sustainable development research projects involving faculty and/or students	9

Seven of the forty activities examined had not been established in the majority of signatory universities. Table 4-3 lists the initiatives that were not implemented in over half of the institutions.

An analysis of the results suggest that in a majority of universities focused on activities that required little capital input. Those initiatives that were not implemented by the majority of signatory universities necessitate more financial support, and potentially require fundamental changes in the traditions and administration of the academic institution. Creating public forums for awareness, for example, will cost a university very little money and time when compared to the design of a new environmental literacy program. Asking faculty to review curricula to see how environmental concepts might be integrated into all courses involves a fundamental change in the way universities perceive teaching activities; whereas encouraging collaborative research projects involving faculty and students does not.

The initiatives listed in the HD can be divided into four categories: public outreach measures; the encouragement of inter-university cooperation; the development of partnerships with government, non-governmental organizations and industry; and, educational programs designed to increase the ecological literacy of the university community (Wright, in-press). Patterns revealed that a majority of initiatives implemented at nine of the sixteen signatory universities were from the educational programs category (curriculum development, workshops, forums).

Table 4-3: Activities Not Implemented Among the 16 Signatory Universities

Activity	Number of universities that did not implement the activity
University designed an environmental literacy program	13
University adjusted the reward system to account for community service and outreach in the context of sustainable environmental development, as a balance for other criteria for tenure and promotion	13
University expressed a commitment to encourage faculty to review curricula to see how environmental concepts might be integrated into their courses	12
University established scholarships for work in environmental fields	12
University sponsored prizes for environmental projects for students, faculty and/or administration	12
University encouraged innovative educational technologies for communicating environmental issues to the general public	11
University established chairs in environment and/or sustainable development	10

Analyses of the questionnaires and interviews revealed clues as to why educational initiatives seemed to be implemented more often than others, and why many initiatives were never implemented at all. One university indicated that their institution favoured educational initiatives because of the interests of its senior administrators:

“Our VP Academic was the main instigator for the implementation of the Declaration. He had an interest in environmental education...so we focused on educational projects. The other stuff we sort of forgot!”
(Respondent 7).

Some universities found that students were the driving force behind environmental activities on campus. For that reason, the implemented activities from the HD were those that affected students directly.

The cost of implementing some initiatives was deemed prohibitive in many of the universities. One respondent who was the HD Ambassador in his university stated that the administrators in his university would only agree to develop specific initiatives if no costs were involved, or if costs could be recovered within a reasonable amount of time. Other respondents indicated that economics forced their universities to modify some of the items listed in the HD.

Information gathered through the questionnaires and interviews suggested the existence of many barriers to implementation. These statements led the study to an examination of the influence the HD had on universities to re-think and reconstruct their environmental practices and policies.

Did the HD Help Signatory Universities To Re-Think and Reconstruct Their Environmental Practices and Policies?

A second objective of this study was to determine the extent to which the HD had encouraged signatory universities to re-think and reconstruct their environmental

practices and policies. The high return rate of questionnaires with “do not know” given to every question was the first hint that the HD might not have been as effective as it was initially hoped it would be. To verify this, the qualitative data collected in open-ended questions of the questionnaires were analyzed and supplemented with information from 18 interviews conducted with representatives from all 16 signatory universities (3 university presidents, 4 vice-presidents, 3 chairs of environmental studies/science departments, 3 directors of facilities management, and 5 individuals within the institution that were present at the CUASD).

Analyses of the interviews and questionnaire responses indicated that to a large extent, the HD was ineffective in influencing signatory universities to create changes in environmental practices and policies within their institutions. Perhaps the most interesting sentiment expressed by respondents was that while their university may have initiated certain environmental activities on campus since the signing of the HD in 1991, most were not a direct result of the HD. One respondent suggested that none of the environmental activities at his university were a consequence of the HD, but were initiatives based on a specific individuals' interests. The reasons cited included problems with communication, a scarcity of leaders, a lack of support for valuing work in university sustainability, and economics constraints.

Some respondents believed that the HD had not been implemented because of a lack of awareness of the document on campus.

There is very little awareness of the Declaration at (our university). Instead, most initiatives have come about because problems or opportunities have been noticed by either students or faculty
(Respondent 1).

To be perfectly honest, most members of the (university) community are not familiar with the Halifax Declaration. Whoever was supposed to increase its profile in the university didn't do his job
(Respondent 5).

Those interviewed for this study who were initially considered an HD Ambassador at their university claimed that the problem with implementation was not because of lack of communication about the Declaration, but was a result of a problem in leadership:

My goal was to make this as big of a deal as possible. I had the president excited, I had faculty excited, but nobody wanted to do any work. Rather, they wanted everything done for them. After a year of working on this on my own, I realized that if I wanted to remain in a tenure-track position and keep up my teaching and publishing record, I could not continue to work on the Halifax Declaration on my own. Besides, if I was the only one who wanted to work on it (HD), it seemed futile for the future *(Respondent 9).*

Our president was really excited about this. He made sure that all academic units within the University were informed of this Declaration and asked each department to come up with a plan for implementing it within their areas of the university. When he left the university, however, things changed. Our new president knew about the Halifax Declaration but had no interest in being actively involved with it. Since then, the document has basically disappeared from our university *(Respondent 13).*

Other respondents stated that while senior administrators were more than willing to sign the HD in principle, there was a lack of will to take action that would help the institution to adhere to the HD Action Plan.

Governance issues were identified as a key barrier to implementation in the case of one university. At this institution the Vice-President Academic adopted the HD for the institution at the CUASD, yet when he returned to the university he found that he did not have the authority to do so. In that particular university, all declarations had to be ratified by the Senate, and Senate would not do so until a cost-benefit analysis of the HD was conducted. Realizing that this would be prohibitively expensive, the Vice-President stopped pursuing the issue.

Lack of economic support is also a barrier for universities willing to improve and implement environmental practices and policies. Many of the signatory universities were excited about the HD, but were unable to implement it because of the initial economic costs associated with it. One Vice-President Academic stated:

Creating a sustainable development network in my region, creating awards for sustainable research, and approaching the media to contribute to national programs on sustainable development all cost money. That would mean taking money out of other resources, or raising tuition. I didn't like either of these options (*Respondent 11*).

To return to the original question of whether the HD helped signatory universities re-think and reconstruct their environmental practices and policies, it seems that a multi-part answer is required. The responses to the questionnaire and interviews in this study reveal that the HD may have had some influence on the development of environmental activities at some of the signatory universities, however the influence was minimal. It is also evident that the HD may have had some influence on universities to re-think their environmental practices and policies, yet numerous challenges prevented any concrete reconstruction of practices and policies.

Should these results have been expected? The difficulties experienced by signatory universities in implementing the HD are consistent with existing research that examines the barriers to institutional environmental change in higher education.

Leadership, for example, is considered crucial to the development and continuance of sustainability initiatives in higher education (Orr, 1992; Keniry, 1994; Smith 1993; Rainsford, 1990, Riggs, 1997; Wood, 1990). A lack of leadership or support from administrators is also viewed as a common barrier to the successful implementation of environmental initiatives within institutions (Allen 1999; MacTaggart, 1996; Perrin, 1992). This study found that leadership was a key factor in developing positive environmental initiatives and activities within the university. Consistent with Keniry (1995) who claims that executive staff play crucial roles in stewardship initiatives, forging of partnerships, and making commitments to sustainability, this study also found that the support of senior administrators was crucial in the success or failure of the HD within individual universities. Only three universities assigned a responsible administrative body or individual to oversee the implementation of the HD beyond the HD Ambassador (e.g. environment committee). The majority of universities gave little financial or administrative support to the HD Ambassadors, and did not assign any body to the task of implementing the HD. In only one case was an executive staff assigned to oversee the implementation of the HD. This may have been key to the ineffectiveness of the declaration within many signatory universities.

Allen (1999) argues that within universities, institutional environmental change will only be successful if there is a steady supply of money and the availability of staff to work on environmental initiatives. This was indeed an oversight made by many who endorsed the HD. While some of the signatory universities were committed to working towards creating more sustainable institutions, many found themselves with a lack of financial support to do so and had to abandon previous plans. There is a need to re-examine how environmental policies are developed and implemented in higher education in order to be effective in the future.

Can We Learn From The Past?

There are lessons we can take from the HD experience and apply to future declarations. The failure of the HD to be an effective document in creating change within signatory institutions was the result of some key deficiencies in the design of the document. What the HD teaches us, for example, is that one individual alone cannot lead in the implementation of a declaration (as was the case with the HD Ambassadors). Rather, it would be more pertinent for universities to set up leadership teams for such declarations, with representatives from all sectors of campus. Responsibilities must also be assigned to people before, or at the adoption of a declaration. This way it is clear to the university community who has the responsibility for each aspect of the declaration and who is to be held accountable. Additionally, universities should understand the economic implications of signing a declaration and be prepared to offer a statement of how the implementation of the declaration will be funded at the time of endorsing any document.

This study has highlighted the need for individualized implementation plans. Wright (in-press) indicates that universities most successful in implementing national and international declarations are those that have created implementation plans specific to their institution rather than using a prescribed plan offered in declarations. This study confirms this notion, showing that many universities found the HD Action Plan either irrelevant or inappropriate for their institution. Initiatives were often too costly for the university to implement, or did not recognize the politics and governing structures of the individual universities.

With the lack of success most HD signatories had with this format of declaration, one might assume that universities would be wary of signing such documents in the future. It is interesting to note, however, that since the signing of the HD, seven of the original sixteen signatory universities have also adopted the Talloires Declaration (a document similar to the HD that was created at the Tufts University European Centre in 1990, and currently has over 275 signatories), as well as other national and international declarations related to sustainability within higher education. This suggests that there are perhaps other motives at play when signing national and international declarations of sustainability. Universities who continue to sign these declarations but have no success in implementation could be accused of attempting to “greenwash” their institutions by endorsing such declarations (for more information on the notion of greenwashing, see Greer and Bruno, 1996). The signing of a declaration becomes more of a public relations event rather than an actual statement of intent. On a less cynical level, it can also be hypothesized that signatory universities felt some sort of moral obligation in creating institutional environmental change and endorsed the HD to make a public statement of their intent, however have found many roadblocks on the way to effecting change. Regardless of motive for the HD, there was and currently is no accountability for universities who have endorsed or signed these sustainability declarations and no formal follow-up to see if a university has met its obligations.

The results of this study suggest that for declarations to be effective and meaningful in the future there must be a change in the way national and international declarations for

sustainability in higher education are created and promoted. Conference organizers and authors of declarations must build accountability into the structure of the document. I would suggest that universities must present the secretariat of the declaration with a specific plan of action before being allowed to become signatories to a declaration. Such a plan would include a draft implementation plan, a list of those responsible for overseeing the implementation, and proof that funds are, and will be made available to undertake initiatives related to the declaration.

The bodies responsible for the creation of the declaration, or the responsible secretariat should also take some responsibility for the implementation of the declaration. Such bodies should provide a support system for signatory universities, offer expertise, and perhaps even financial aid in the implementation of the declaration. At the very least, such bodies should be responsible for documenting the implementation of the declaration they created.

Conclusion

Declarations for sustainability in higher education are a meaningful way to develop support for the movement towards sustainability in higher education and to communicate the “green campus” message around the world. However, this paper has shown that in the case of the Halifax Declaration there was a clear lack of knowledge regarding the HD and specific university environmental initiatives, a lack of implementation of HD initiatives within institutions, and barriers to institutional environmental change within the university. This study has demonstrated that the signing of the HD was not enough to influence significant and fundamental institutional environmental change within a university setting. Future declarations must be modified and improved in order to truly impact an institution's ability to re-think and reconstruct its environmental practices and their commitment to sustainability.

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Chapter Five

Consulting Stakeholders in the Development of an Environmental Policy Implementation Plan: A Delphi Study at Dalhousie University

Introduction

Over the past three decades, numerous universities have developed environmental policies. These policies offer broad statements of intent, and often discuss the moral obligation of the university to encourage environmental sustainability within their institution and society (Wright, in-press). One criticism of such documents, however, is they lack specific directives or action plans through which to achieve the overall goals and objectives of the policy. The development of an environmental policy is a meaningful first step in facilitating institutional environmental change. I argue that without an implementation plan, environmental policies will remain as statements of intent, and will not be used to guide the day-to-day activities of the university (Wright, 2002). An implementation plan must offer concrete actions and timelines for achieving the vision outlined in the environmental policy. In order to create an implementation plan that is both desirable and feasible to execute, it is necessary to receive input from all sectors of the university who will be charged with implementing the policy. A multiple stakeholder process in the creation of an implementation plan is advantageous as it helps to generate ideas, verify the feasibility of the implementation plan, increases the profile of the policy in the university (Lazin, Aroni & Gradus, 1988), and can facilitate a broader ownership of the implementation plan (Leal Filho, 1999).

A Delphi Study was undertaken at Dalhousie University in which a panel of students, staff, faculty and administrators were consulted in order to generate ideas that could be incorporated into an Implementation Plan for the draft University Environmental Policy (UEP). The objectives of the study were twofold. First, the study endeavored to develop ideas as to the most desirable and feasible ways in which to incorporate the UEP into the activities and structure of the university. Second, the study sought to assess the applicability of the Delphi Technique for consulting with stakeholders in the development of an implementation plan, as this tool had not been used in this specific context before.

Background

In September 1999, the Senate Environment Committee at Dalhousie University, the largest university in Atlantic Canada, set out to re-write the University Environmental Policy that had been in place since 1994. There were many reasons for this undertaking. The Senate Environment Committee felt a need to review the Policy given their commitments as signatories to the Halifax Declaration in 1991, the Talloires Declaration in 1999, and the United Nations Environment Programme's International Declaration on Cleaner Production in 2000. The Environmental Policy of 1994 had been criticized for a lack of specific objectives, targets and procedures. Furthermore, the Environmental Policy did not serve as a guiding document for any administrative body on campus, and did not include a means for achieving goals outlined within the document (Baker, 1998).

Re-writing of the Environmental Policy resulted in a document that outlined nine Policy items for the university to pursue (Table 5-1). Most of the Policy Items echoed the sentiments of the Environmental Policy of 1994 and the various national and international declarations to which Dalhousie had become a signatory. The draft Environmental Policy differed from these previous documents in that it outlined the need for the creation of an Implementation Plan (Policy Item 8) to ensure that the UEP would be useful and meaningful for the Dalhousie community.

Table 5-1: An Outline of the new Environmental Policy at Dalhousie University

Policy Item	Item Overview
1	Foster environmental literacy for all and educate for environmental citizenship
2	Encourage scholarly and applied research into the problems of environmental degradation
3	Facilitate environmentally appropriate choices by its employees
4	Set an example of environmentally responsible consumption
5	Manage its buildings and grounds in an environmentally responsible manner
6	Invest its financial resources in an environmentally responsible manner
7	Lead in the community, and in so doing provide an environmental role model for other universities and organizations in Nova Scotia, Canada and internationally
8	Adopt an implementation plan for the environmental policy
9	Review the environmental policy and monitor its implementation

The Environmental Policy Implementation Plan Committee (EPIP) was formed in November of 2000 to begin the process of creating an Implementation Plan (Table 5-2). The EPIP undertook many initiatives to consult with the university community in the creation of the Implementation Plan. This paper focuses solely on the Delphi Study, which was a part of the larger project initiated by the EPIP.

Method

This study used the Policy Delphi Technique to consult with key representatives of the university community in order to generate ideas about the most desirable and feasible ways in which to incorporate the UEP into the activities and structure of the university. The Conventional Delphi Technique has traditionally been used as a method to elicit the opinions of a group of experts in order to forecast future events (Dalkey, 1967; Helmer 1983). In the past three decades the Delphi Technique has transcended its forecasting scope and has developed into a multiple-use planning tool (Delbecq, 1986). Straus and Zigler (1975) describe three recent modifications to the Delphi Technique as the: (a) Numeric Delphi; (2) Historic Delphi; and (3) Policy Delphi. Rosenbaum (1991) adds to the list of modifications, offering the Pedagogic and Real-time Delphi Techniques. Regardless of the type used, some characteristics are common to all Delphi Techniques:

- ♦ Iteration: the judgements of individuals are aggregated and communicated back to all participating experts in a series of questionnaires;
- ♦ Controlled feedback: the communication of aggregated judgements occurs in the form of summary measures of responses to questionnaires; and
- ♦ Statistical group response: the summaries of individual responses are presented in the form of measures of central tendency, dispersion and frequency of distributions (Dunn, 1981, p. 196).

Table 5-2: The EPIP Framework for Creating a Policy Implementation Plan

Activity	Tasks
Create a Working Framework	<ul style="list-style-type: none"> Initial background readings Research of other university plans and formats Create Draft Content for Policy Items
Delphi Study	<ul style="list-style-type: none"> Develop a list of panelists Distribute and analyze three separate questionnaires Integrate results into Draft Implementation Plan
General Meeting	<ul style="list-style-type: none"> Create information package Promotion of meeting: press releases, posters, electronic invitations Create meeting agenda and presentations Create Comment Form Analyze Comment Form Integrate results into Draft Implementation Plan
On-line Invitation	<ul style="list-style-type: none"> Create website that requests feedback Promote site to university community Compile electronic comments Integrate results into Draft Implementation Plan
Interviews on Targets and Indicators	<ul style="list-style-type: none"> Create survey and committee input Conduct interviews Analyze data Integrate results into Draft Implementation Plan
Draft Implementation Plan (DIP)	<ul style="list-style-type: none"> Integrate comments from Working Framework, Delphi Study, General Meeting, On-line Invitation, and Interview into a Draft Implementation Plan Edit and finalize Draft Implementation Plan
Individual Feedback on Draft Implementation Plan	<ul style="list-style-type: none"> Contact "Friendlies" to give feedback Contact key experts within the university to give feedback on specific sections
Final Plan	<ul style="list-style-type: none"> Write responsibilities Create timelines Present Draft Implementation Plan to Senate Environment Committee Give Senate Environment Committee recommendations for the adoption and dissemination of the Draft Implementation Plan

First developed in 1969, the Policy Delphi differs from the Conventional Delphi Technique in that it is a tool for analysis rather than a mechanism for predicting the future (Turoff, 1975). The objective of a Policy Delphi study is to generate ideas and provide decision-makers with the strongest arguments for and against different resolutions to an issue. The Policy Delphi can be used in a variety of situations including the examination of the acceptability of a particular policy option, situations where decision-makers wish to ensure that all possible options have been considered, and the estimation of the impact a particular policy option might have (Turoff, 1975). In the Policy Delphi, the notion of "expert panelist" is replaced with the idea of the informed advocate. The process for selecting panelists is based on criteria of interest in a particular area rather than expertise. The purpose of this selection is to be inclusive and to select informed advocates who can represent the many varied interests of a group.

The sample for this study was chosen purposively for their interest in enhancing environmental sustainability within Dalhousie University. Consistent with the Policy

Delphi Technique, panelists were not required to have expertise, but rather an interest in university sustainability and environmental policy. To ensure broad representation of the Dalhousie community, the Senate Environment Committee engaged in a stakeholder identification exercise (Davy, Earl, and Clift, 1999) which culminated in the identification of four categories of stakeholders: students, staff, faculty and administrators. Members of the Senate Environment Committee were then asked to identify individuals from each stakeholder category in their departments who might be interested in becoming involved with the process. An initial list of 64 individuals was compiled and separated into categories of students, staff, faculty and administrators. For each category, 7 names were randomly selected out of an envelope to create a panel group of 28 members. This size of the panel exceeded the requirements for a heterogeneous study in which individuals share an interest in the topic being discussed, but come from different social and professional stratifications (Clayton, 1997).

Three rounds of questionnaires were distributed and returned by panel members via email. Panelists never met face to face. Their identities were not revealed to other panel members. In Round One an open-ended questionnaire asked panelists to respond to the question: After reading the draft University Environmental Policy, what recommendations do you have for each of the 9 policy items, to incorporate the draft University Environmental Policy into the activities and structure of Dalhousie University? Panelists responses were combined to create a master list of recommended initiatives listed under each of the 9 Policy Items. Duplicate responses were reported in the master list as one answer, staying as close to the original wording as possible. Items listed on the master list were unattributed so that no person could identify who had offered which response.

A subsequent questionnaire was given to panelists in Round Two. Panelists were given the opportunity to review the master list of responses from Round One, and rate each proposed initiative for both desirability and feasibility on a Likert scale of 1 to 5. The Likert scale allowed panelists to quantify varying degrees of agreement or disagreement with a given response in the master list. For desirability a rating of 5 indicated that the panelist felt the item was desirable within the university, while a rating of 1 indicated that the item was not desirable within the university. Feasibility ratings of 5 indicated that an initiative was feasible to implement within the university, and a rating of 1 indicated the panelists' belief that the initiatives could not feasibly be implemented.

Responses were analyzed for measures of central tendency and dispersion for each item using SPSS v.10.7 for Windows (SPSS, 2001). The interquartile range (IQR), which indicates how widely responses differ from one another, and the median answer for each proposed initiative, led to the creation of three categories of initiatives for analysis:

- Items the Group Rated as Desirable and Feasible. These were items that had a high level of consensus amongst the group as being highly desirable and feasible ways in which to incorporate the UEP into the activities and structure of Dalhousie University. Items in this group had a high median score for desirability (4-5), a high median score for feasibility (4-5), and a low interquartile (IQR) range (0-1) for both desirability and feasibility.
- Items the Group Rated as "Unsure" or Not Desirable. This category included all items the group rated as being unsure or undesirable ways in which to incorporate the University Environmental Policy into the activities and structure of Dalhousie University. These items had a median score of 1-3 for desirability. The IQR score was calculated but not used for the categorization of items in this category, so that these items could receive qualitative feedback in Round Three.

- Items the Group Rated as Highly Desirable and Not Feasible. The items in this category had a high median score for desirability (4-5), a low median score for feasibility (1-3), and a low IQR range (0-1) for both desirability and feasibility.

The category “highly desirable but not feasible” was created to understand what challenges and barriers panelists perceived to the implementation of various initiatives within the university. Categorizing and presenting the data this way was considered meaningful as results could be directly used for the development of the final University Environmental Policy Implementation Plan.

In Round Three a third questionnaire was distributed that listed each panelist’s response in Round Two, as well as the group response to each item under the three categories outlined above. Panelists were invited to reflect on the personal and group ratings in the second questionnaire and, if desired, modify their responses. The third questionnaire also asked panelists to explain their ratings of each item.

The returned questionnaires were analyzed for measures of central tendency and dispersion for each proposed initiative a second time, and initiatives were finalized under each of the three established categories. Qualitative data were analyzed using coding (Glesne, 1998) and data display (Miles and Huberman, 1994) techniques. Qualitative responses were used to enhance the understanding and analysis of the quantitative data.

The Delphi Process Results and Discussion

The first objective of this study was to construct ideas and develop strong arguments for and against various methods of implementing the new UEP. The process resulted in a diversity of responses and proved to be an excellent forum for the generation of ideas and debate amongst panelists.

Round One of the study resulted in a final Master List of 125 recommendations. This Master List was given to the panelists in Round Two for evaluation. Panel members were asked to rate each recommendation on the Master List separately for its feasibility and desirability for implementation within Dalhousie University. The analysis of the responses from Round Two found that 36 items were rated by the panelists as desirable and feasible, 14 were considered undesirable, and 7 were thought to be desirable but not feasible. Items that did not fit into the established categories were noted, but not used for the final analysis in the study.

In Round Three panelists were asked to review their scores, modify them if they wished and offer explanations for their ratings of each item. The majority of panelists changed between two and five of their scores. Some stated that the changes were due to further contemplation of the desirability and feasibility for the item to be implemented within the university. Others indicated that they were willing to trust the group’s expertise and changed their score on a particular item to reflect the group median score given for the item in Round Two. An analysis of the modified scores for Round Three found that the overall categorization of items had not changed. The same 36 items were still rated as desirable and feasible, 14 not desirable, and 7 desirable but not feasible. While space restrictions make it impossible to list all of the initiatives for each category, Table 5-3 highlights some of the proposed initiatives and associated ratings after the analysis conducted of Round Three responses (a full list can be found in the appendix).

Table 5-4: Selected Ratings for Selected Questionnaire Items

Items Rated as Desirable and Feasible	Items Rated as Not Desirable or Unsure	Items Rated as Desirable but Not Feasible
Policy Item 1: Foster environmental literacy for all and educate for environmental citizenship		
Create an Office of Sustainability to oversee the implementation of the Policy on campus.	Expand existing undergraduate and graduate program to form a new Faculty of Environmental Studies.	
Actively work towards the greening of all curricula	Require all graduating students to pass an environmental literacy test.	
Policy Item 2: Encourage scholarly and applied research into the problems of environmental degradation		
Sponsor a national prize for outstanding research in finding solutions to environmental problems		
Award scholarly and applied research in the environment		
Policy Item 3: Facilitate environmentally appropriate choices		
Only renew contracts with environmentally friendly product companies	No salt on sidewalks	Catering and fast-food outlets on campus should offer ONLY non-disposables
Offer cash discounts for the use of green products and services	Make the parking fee less for small cars and more for big ones	Only allow for 100% post consumer recycled non-chlorine bleach paper to be sold on campus
Accept assignments and papers electronically		Create bike lanes to campus
Policy Item 4: Set an example of environmentally responsible consumption.		
Encourage car-pooling on campus	Adopt a University Precautionary Principle Policy	Invest in environmentally benign companies
Create an environmentally friendly procurement policy		Use wind and solar energy on campus
Buy everything locally as much as possible		Dedicate a few buildings on campus to total self-sufficiency
		Have administrators take the lead in environmentally responsible consumption

...Table 3 continued

Items Rated as Desirable and Feasible	Items Rated as Not Desirable or Unsure	Items Rated as Desirable but Not Feasible
Policy Item 5: Manage its buildings and grounds in an environmentally responsible manner.		
Develop an integrated waste management system campus-wide	Stop burning bunker-c (oil furnace) for heat and energy production	
Start a composting station on campus		
Use no pesticides on campus		
Policy Item 6: Invest its financial resources in an environmentally responsible manner.		
Invest locally and with long-term rather than short-term vision	Delete Policy Item 6 in the Draft Policy as it hurts the pension fund	
List all funds Dalhousie is currently invested in.		
Policy Item 7: Lead in the community, and in so doing provide an environmental role model for other universities and organizations in Nova Scotia, Canada and internationally.		
Make sure that the development of an implementation plan for environmental policy is an inclusive process	Offer students fee reductions for environmental volunteerism	
Lobby Macleans Magazine to have "green" rankings in university guide		
Policy Items 8 & 9: Adopt an implementation plan for the environmental policy AND review the environmental policy and monitor its implementation.		
Review implementation policy annually and create changes	Become ISO14000 registered	
Set definitive timelines for implementation of policy	Have severe punishments for departments who have not met milestones on implementation plan.	

Items Rated as Desirable and Feasible. Of the 125 proposed initiatives listed in the first Delphi round, 36 (28%) were rated as desirable and feasible. Qualitative analysis found some trends in the data. To begin, many of these responses supported the need for the implementation, as well as the communication of the UEP across campus. Initiatives rated as desirable and feasible included: create an Office of Sustainability to co-ordinate, review, implement, educate, monitor, advocate, and draw attention to environmental policy and implementation on campus; an inclusive process behind the development of an implementation plan for environmental policy; a review of the implementation policy annually and the setting of definitive timelines for the implementation of the policy.

Another trend was the support for initiatives that required minimal financial constraint. Initiatives that appeared in this category included the development of public speakers series on the environment; the creation of publicity campaigns for recycling, composting and educating individuals to make environmentally responsible choices in their consumption patterns; offering cash discounts for the use of green products and services on campus; accepting term papers electronically; and, encouraging carpooling amongst faculty, staff and students.

Some items that were rated as feasible and desirable were found to have more extensive financial implications such as investing the university funds locally and with long-term rather than short-term vision; purchase high quality items (from dishes to photocopiers) that can be re-used many times and have a long life; place a high priority on building environmentally friendly buildings; and create an Office of Sustainability to co-ordinate, review, implement, educate, monitor, advocate, and draw attention to environmental policy and implementation on campus. While these initiatives were expected to take more time and money to implement, panelists felt that the proposed initiatives were worthwhile.

A few of the proposed initiatives listed in this category were ambiguous. Response 13, for example, suggested that the university actively work towards the greening of all curricula. The group rating was 5 for desirability and 4 for feasibility. Those that were wary of supporting this item stated that it lacked substance and specific instructions on how to implement such a statement.

Items Rated as Not Desirable or Unsure. Of the 14 items that fell under the category of Not Desirable or Unsure, only Response 14 (which stated: do not continue with the current Environmental Policy as it is an ill-informed and ill-conceived document and is laughable junk science) received a median score of 1. All other items in this category had a median of 3 (which, on the Likert Scale was classified as “unsure”) and resulted in some very interesting comments amongst panelists. Analysis of the qualitative data for these proposed initiatives revealed two major themes: education and economic issues.

Educational initiatives that the panelist rated as unsure included: the addition of an environmental component to the new skills transcript program; the expansion of existing undergraduate interdisciplinary environmental studies programs; the combining of the undergraduate and graduate departments offering environmental programs to form a new Faculty of Environmental Studies; and the requirement for all students to pass an environmental literacy exam before graduating.

Respondents were unsure of many items if there were financial costs for the university (stop burning the oil furnace on campus meant putting significant funds into alternative heating systems), for themselves (make the parking fee less for small cars and more for big ones), or for the future (delete Policy Item 6 in the Environmental Policy which state that we invest financial resources in an environmentally responsible manner as it hurts the pension fund).

Response 106 received many concerns that were both financial and educational in nature. This initiative stated that students should be offered fee reductions for environmental volunteerism. A variety of responses were offered by the panelists:

Not realistic as it cannot realistically be monitored. Also, this totally diminishes the useful volunteerism that students do in other areas. I know many of our students volunteer in many capacities that are of direct benefit to people who really need the assistance. To me, this is more worthy of fee reduction than environmental volunteerism (Respondent 12).

This is an excellent method to instill environmental awareness and values in students and reward their achievements through reductions to an already (extremely) high tuition level. This is in line with bonuses and benefits awarded administrators for their work (Respondent 7).

Many of the items in this category had large interquartile ranges revealing a diversity of opinions regarding the desirability of the item. An extreme example is the response given to Response 87 which suggested that the University have sheep graze the grass instead of cutting it to cut down the carbon dioxide emissions from the university.

This is totally ridiculous! Are we going to have to hire a university shepherd now? (Respondent 13).

This is an amazing idea. We could lead by example, and hire students to aid in the management of the sheep. It is a win-win situation for everyone...including the sheep! (Respondent 5).

While the items rated as not desirable or unsure could not be used in the Implementation Plan, the analysis of the qualitative responses in this category offered the EPIP many insights into how people in the university community were thinking.

Items Rated as Highly Desirable and Not Feasible. Perhaps the most interesting items analyzed for this study were those rated as very desirable but not feasible. While only 7 items (5.6%) were categorized in this light, the reasons cited by the majority of panelists for such a rating involved monetary and leadership issues. This is consistent with the literature on barriers to sustainability in higher education.

Leal Filho and Wright (in-press) state that most universities trying to implement environmental and sustainability measures are often faced with scarce financial resources and have to abandon initiatives due to the current climate of fiscal restraint in higher education. This indeed was the case for many of the items listed as desirable, but not feasible in this study. Item 67 “use wind and solar energy on campus”, for example, was considered highly desirable, yet economically impractical:

Where will the units go? Who will pay for them? Who will repair and maintain them? How will the power be put onto the grid? If it costs less, it would have already been done. If it costs more, tuition will have to go up. If tuition goes up, the bright (but poor) student will go elsewhere to a lesser school, and not learn how to solve life's problems, including environmental problems (Respondent 11).

Similar responses were given for the suggestion to dedicate a few buildings on campus to total self-sufficiency (Item 66). Some respondents claimed that such a plan would be “unworkable” or “too expensive and too much work”.

Item 64 which stated that administrators of the university should take the lead in environmentally responsible consumption was rated as desirable but not feasible. Qualitative responses in Round Three revealed various reasons for this response. Some panelists lacked faith in administrators at the University to initiate change:

They (administrators) tend to be old, conservative, and money driven (Respondent 26).

The majority of panelists, however, felt that environmentally responsible consumption is the responsibility of the whole university community.

I think that we should focus on all people involved not just administrators. Besides, who's going to notice or care about what they do - assuming that we can get them to cooperate! *Respondent 13*).

Despite this call for the entire university community to be involved with the implementation of the University Environmental Policy, panelists listed that a lack of leadership was a major barrier to implementing many of the suggested items on campus. This is consistent with Keniry (1995), Allen (1999) and Clugston (1999) who claim that the involvement of key administrators within the university is critical to the development and continuance of environmental initiatives in higher education,

I think it would be desirable to get the administrators in on the plan. However, having said that, I don't really think the campus administrators would really be that interested. In fact, I think they would grumble and work-to-rule...i.e. do very little of the stuff that wasn't part of their job description (*Respondent 3*).

My experience with (Dalhousie University) is that the administration is very weak in most areas, especially those requiring a high degree of commitment and I would not want to rely on them to carry this plan through (*Respondent 7*).

Some of the panelists stated that while it was important to have administrators at Dalhousie University endorse the implementation plan, these administrators might not necessarily have to be fully responsible for the implementation of the University Environmental Policy and Implementation Plan. Suggestions were made for the creation of an Office of Sustainability that would provide leadership, co-ordinate, review, implement, educate, monitor, advocate, and draw attention to the UEP and Implementation Plan on campus.

The Applicability of the Policy Delphi in Developing an Implementation Plan

One of the objectives of this study was to assess the applicability of the Delphi Technique as a tool in the creation of an implementation plan. While the items and ratings generated from panelists in this study are institution-specific, the technique used to generate these data has wide applicability for universities.

The Policy Delphi has been used in the context of higher education in the past. This is the first study, however, to use the Policy Delphi in the creation of an Implementation Plan for an environmental policy in higher education. In the case of Dalhousie University, the use of the Delphi Technique proved to be an integral component for creating an effective environmental implementation plan, and could have the same promise in other universities.

The Delphi Study can be used as a tool to educate the university community regarding a specific issue or program. In the case study of Dalhousie University, three observations can be made. First, the use of the Delphi Technique resulted in consciousness-raising for the UEP itself and about the need to create an implementation plan. Many of the panelists for this study claimed that they had an interest in environmental issues on campus, but had no idea there was a new UEP being put forward. Second, the process sparked interest and awareness of University Environmental Policy implementation issues. During the course of the study there were many conversations between the primary investigator and panelists regarding the need for the University Environmental Policy to be accompanied by an implementation plan in order to be meaningful and

effective within the university. Third, the process was an excellent education for the primary investigator and for the team charged with the task of creating the final implementation plan. The panelists provided new ideas and exposed new criticisms and tactics for the UEP.

The Delphi Technique attempts to not pre-determine, elicit, or restrict specific answers from panelists or restrict certain responses. The first question posed to the panelists, therefore, is open-ended and general in nature. In this case study, the first question was an appropriate way to brainstorm ideas amongst a diverse group of individuals. While there was some repetition of items from the panelists, the majority of responses to the questions were unique. Innovative and creative ideas were offered in the first questionnaire that would be unlikely for one person to generate on his/her own. It was also helpful to have staff, students, faculty, and administrators as part of the process, as each group and each individual had many different interests and varying perspectives regarding environmental issues on campus.

Many panelists claimed that being part of the Delphi Study was empowering. Not only were they educated regarding the UEP, they were also able to engage in debate over environmental policy issues which regularly does not have a forum on campus (although there is a Senate Environment Committee, membership is restricted). Further, the process facilitated a broader sense of ownership of the policy and the implementation plan and created the perception that the implementation plan came from the grassroots rather than a document imposed upon people from administration.

In support of the Delphi Technique, Forsyth (1990) suggest a substantial weakness with face-to-face encounters amongst groups of individuals within an institutional setting. The most significant problem associated with face-to-face contact is the influence of group dynamics on individual responses. This study, and the Delphi Technique in general, avoided such problems by creating a setting in which panelists had complete anonymity to other panelists (only the primary researcher knew which panelist answered which questionnaire). Panelists responded to the questionnaires through email, never meeting with the primary investigator or other panelists. This allowed for a dialogue between individuals who might not normally have interactions and discussions about environmental issues (for example, staff from facilities management and the chair of an academic department), or who might be influenced by power relationships in face-to-face contact situations. The Delphi Technique is useful in the development of an implementation plan as it encourages debate and exploratory thought while at the same time the physical separation of panelists eliminates power and performance pressures without weakening independent thought or inhibiting novel ideas.

For this study, the Delphi Technique was a good tool to understand and identify attitudes and perceptions of a variety of individuals at the university. The responses to the questionnaires gave a good indication of environmental priorities panelists had and identified areas where education should occur. The study also helped to identify misconceptions. For example, many panelists felt that pesticides should no longer be used for landscaping at the university; however this policy is already in place and is currently practiced at the university. Such an understanding will aid the university in the creation of environmental initiatives and the communication of environmental programs in the future.

Conclusion

The results of this study were interesting and valuable. The items generated in the three rounds of the study were used extensively by the EPIP in the creation of the final Implementation Plan for Dalhousie University. The qualitative responses in the study are

congruent with the literature on the challenges, barriers and opportunities encountered with institutional environmental change in higher education. The study also confirms the findings of existing research that promotes the Delphi Technique as an excellent tool to inform the creation of educational and social policy. Specifically this study illustrates the benefits of applying the Policy Delphi Technique to the development of an Environmental Policy Implementation Plan in higher education.

While the Delphi Technique was an effective tool for the generation of ideas in the case study of Dalhousie University, a caveat should be offered against using the Delphi Technique as the sole method for the creation of an implementation plan. It is possible that the ideas generated in this study were influenced by the idealistic nature of the panelists who were chosen because of their interest in environmental sustainability issues at Dalhousie University. Further, some panelists expressed a concern regarding the extent to which the items deemed feasible and desirable by the group would help the university travel along the path to sustainability.

Some of these suggested activities are great, but others are really superficial. Come on....does having a speakers series on environmental issues really make our university environmentally sustainable? (*Respondent 4*).

These concerns were noted by EPIP who deemed it necessary for the results of the study to be scrutinized by facilities management staff, curriculum designers and other environmental experts as part of a larger process of creating the Implementation Plan. From the start of the project, however, the stated purpose of the Delphi Study was to aid in the creation of an Implementation Plan for the UEP at Dalhousie, not in providing the final plan. The ultimate decision of how the university would travel along the path to sustainability, and how the Implementation Plan would look in the end was left to the EPIP and the Senate Environment Committee. This study has proven to be an important component in that process.

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Chapter Six

Conclusion

This dissertation examined various aspects of sustainability in universities through the use of a Multiple Paper Format Ph.D. dissertation (as described by the Thesis Handbook, Faculty of Graduate Studies and Research, University of Alberta 2000). This final chapter summarizes the key points of each paper, discusses the implications of the dissertation for theory and practice as a whole, and offers personal reflections regarding the research.

Summary of Chapters

Chapter One. Chapter One provides the conceptual foundation for this dissertation. It begins with a personal discussion of why I am interested in the study of sustainability within the context of the university. By tracing my exposure to environmental thought through personal and educational activities, I am better able to understand how my beliefs shape the dissertation.

The chapter moves from this personal exploration into an academic discussion of the rationale for the dissertation. I argue that universities have been a significant part of society for many years and have served various purposes over time. A movement towards universities becoming models of environmental sustainability has emerged in the last 30 years, as documented in the literature in fields such as environmental policy, environmental education, and higher education. Universities are a fundamental part of society, and as such, have the potential to influence many individuals and have a significant impact on both human and environmental health. A review of the literature on sustainability in higher education clearly states that universities have a moral responsibility to become models of sustainability and centres of environmental research and teaching expertise (Clugston, 1999; Cortese, 1992; Keniry, 1995; Orr, 1995).

The chapter continues with an examination of the literature on sustainability within the context of institutional environmental change, thereby introducing the individual papers. A discussion of the history of the term sustainability reveals criticisms of the traditional understanding of the term “sustainable development” that states that humanity must meet the needs of the present without compromising future generations from meeting their own needs. An alternative definition is adopted which includes the consideration of ecological, political, social, and economic matters in decision-making for sustainability.

Applying the notion of sustainability to universities, Chapter One explores what it means to be a sustainable university. The literature shows that while the term “sustainability” may be seen as ambiguous, there is a clear understanding of what it means to be a sustainable university. The literature of sustainability in higher education suggests indicators of sustainability which are reviewed and critiqued. I conclude the chapter with the suggestion that one cannot merely become a sustainable university by following a set of instructions or indicators. The earth is a living entity and is constantly changing. What is conducive to environmental sustainability is therefore constantly changing. This in turn affects the actions of the university and the measures it takes to become more sustainable. University sustainability, therefore, should be conceptualized as a continuum with multiple paths upon which an institution can travel rather than a final destination.

Chapter Two. Chapter Two examines national and international sustainability declarations and institutional sustainability policies related to higher education. The chapter begins with an overview of declarations and policies related to the various aspects of sustainability in higher education and gives a brief history of the genesis of

each document. Analyses of these documents reveal emerging patterns in how universities frame the central task of becoming sustainable and how higher education views sustainability. Patterns and themes among the declarations and policies are identified including sustainable physical operations; research related to sustainability; environmental literacy; ethical and moral responsibility; cooperation amongst universities and countries; development of interdisciplinary curriculum; partnerships with government; non-governmental organizations and industry; and, the need for universities to become leaders by being models of sustainability in their own operations. The identification of these themes and patterns furthers the understanding of what universities believe are the key priorities to becoming sustainable institutions, and what paths universities believe they should take on the journey to sustainability. This provides a starting point for an exploration of the challenges to institutional environmental change in higher education.

The chapter suggests that there is a current gap in knowledge as to how declarations have been incorporated and implemented in colleges and universities that have endorsed or have become signatories to such declarations.. While an examination of how these declarations have been implemented as a whole was beyond the scope of the chapter, a selection of a few individual universities who have adopted a declaration are examined. These case studies reveal that while some universities have made an attempt to honour their commitment to a particular declaration, there are also many signatory institutions which have not worked towards sustainability at all. This raises the issue of accountability in becoming a signatory to a national or international declaration. I suggest that some institutions may be signing declarations for public relations purposes and may not be supporting the overall effort to greening campuses. Further, I state that the ability for universities to “greenwash” their institutions by signing such declarations is an issue that needs to be discussed in further detail. The chapter also examines the implementation of institution-specific environmental policies. In some of the case studies examined, universities were successful in implementing environmental policies. Other case studies, however, revealed that many universities faced significant challenges and were not successful in implementing environmental policies and declarations.

The chapter identifies a gap in knowledge regarding the degree to which sustainability declarations and policies have been implemented in universities, and a lack of understanding of what challenges and opportunities universities face during attempts at implementation, thus providing the rationale for Chapters Three and Four.

Chapter Three. Based on the recommendations for further study in the previous chapter, Chapter Three explores the challenges and barriers for universities attempting to become more sustainable. The chapter begins with a discussion of the term change. Change can take many forms including evolutionary, revolutionary, cyclical, retrogressive or catastrophic. This can make the development of a single definition of change very difficult. In the context of sustainability in higher education, change is regarded as positive institutional reform for the purpose of improving the environmental performance of the university.

The focus of the chapter is to outline the various challenges to creating institutional environmental change within higher education using Canadian and European examples. A caveat is offered to the reader that many individual institutions that were examined for the study were not willing to be identified in the paper in cases where they had experienced many challenges and barriers in their quest for becoming more sustainable institutions. When speaking with individuals within universities that had experienced challenges in pursuing sustainability, it was found that most did not want to “air their dirty laundry” or report on the personal battles of the process because of the nature of politics within their institution.

Using general examples from both European and Canadian case studies, this chapter confirms findings in the literature which list governance, advocacy and leadership, communication, economics and policy issues as potential barriers to institutional environmental change within universities. This chapter purports that researchers and practitioners should continue to examine the challenges and barriers to institutional environmental change, as well as begin to develop solutions for overcoming such hurdles.

Chapter Four. Chapter Four examines issues of institutional environmental change within the university from a Canadian perspective. This chapter examines the extent to which The Halifax Declaration (introduced in Chapter One and referred to in Chapter Two) was implemented within the 16 Canadian universities that endorsed it at its inception. Further, this chapter discusses the extent to which the Halifax Declaration (HD) challenged those institutions to re-think and reconstruct their environmental policies and practices.

The chapter begins with a discussion of the Conference on University Action for Sustainable Development (CUASD) where the HD was created. The principal goal of the conference was to consider the role universities could play in improving the capacity of countries to address environment and development issues, and to discuss the implications the Talloires Declaration (which stated the commitment of a number of university administrators' to environmental sustainability) had for Canadian Universities.

The HD was presented to participants on the final day of the conference. The HD stated that universities must take a leadership role in effecting environmental change, and challenged their administrators to re-think and reconstruct institutional environmental policies and practices, and to contribute to environmental sustainability at local, national and international levels. Accompanying the declaration was an Action Plan that outlined short-term and long-term goals for signatory universities and identified frameworks of action for institutions. The Action Plan was intended to provide a clear sense of direction for signatory universities, and included key core activities universities should engage in to implement the HD within their institutions.

At the conclusion of the conference, leaders from sixteen Canadian universities (Carleton, Dalhousie, McMaster, McGill, Memorial, Mount Saint Vincent, Queen's, Saint Mary's, Trent, Moncton, Montréal, Calgary, Manitoba, New Brunswick, Western Ontario, and York) declared their university's commitment to becoming more sustainable and endorsed the HD. The chapter examines the degree to which initiatives outlined in the HD were implemented at signatory universities ten years after its endorsement, and discusses the extent to which the HD encouraged universities to re-think and reconstruct their environmental policies and practices.

Three main methods were used in this study: questionnaire distribution and analysis; informal telephone interviews; and document research and analysis. A questionnaire was designed and used to explore if the environmental initiatives listed in the HD Action Plan were implemented at signatory universities, as well as to gain insight into the effect the HD had on universities to re-think and reconstruct their environmental policies and practices. The use of a questionnaire was chosen as an appropriate data collection tool in order to efficiently access a large number of individuals over a wide geographical area. Questionnaire participants were purposively selected from each of the 16 signatory universities.

Eighteen informal telephone and personal interviews with key representatives at each signatory university were used to add validity to the data collected regarding the environmental initiatives that were implemented at signatory universities as a result of the HD, and to better comprehend how the HD had helped universities re-think and

reconstruct environmental practices and to take action towards becoming more sustainable institutions. Interview participants included 3 university presidents, 4 vice-presidents, 3 chairs of environmental studies and science departments, 3 directors of facilities management, and 5 individuals within the institution that were present at the CUASD. Document and archival research was conducted in order to add validity to the results obtained through the interviews and questionnaires, and to gain a better understanding of the situation at each signatory university. These documents included university calendars, brochures on environmental programs, minutes of various university environmental committees, annual reports, and books on the history of various universities.

The data showed that the majority of signatory universities were unable to implement the Halifax Declaration within their institutions. This chapter builds on the previous two chapters as it outlines the challenges to implementation that signatory universities faced in the implementation of a specific sustainability declaration. The chapter concludes that the failure of the HD to be an effective document in creating change within signatory institutions was the result of some key deficiencies in the design of the document. Suggestions for the improvement of future declarations are offered. Key recommendations are for universities to develop leadership teams which are clearly designated as the responsible body for the implementation of the declaration, the development of an economic blueprint for implementation prior to becoming a signatory to a declaration and the development of an individualized implementation plan that is institution-specific.

Chapter Five. Chapter Five reports on a Delphi Study undertaken at Dalhousie University in which a panel of 28 students, staff, faculty and administrators were consulted in order to generate ideas that could be incorporated into an Implementation Plan for the draft University Environmental Policy (UEP). This study was part of a larger project initiated by the Dalhousie University Senate Environmental Committee Environmental Implementation Plan Sub-committee (EPIP), to create an Implementation Plan for the university's new Environmental Policy. The objectives of the Delphi Study were twofold. First, the study endeavored to develop ideas as to the most desirable and feasible ways in which to incorporate the UEP into the activities and structure of the university. Second, the study sought to assess the applicability of the Delphi Technique for consulting with stakeholders in the development of an implementation plan, as this tool had not been used in this specific context before.

The Policy Delphi Technique was used in this specific study. The Policy Delphi Technique is a tool that can be used to generate ideas and provide decision-makers with the strongest arguments for and against different resolutions to an issue. The Policy Delphi can be used in a plethora of situations including the examination of the acceptability of a particular policy option, situations where decision-makers wish to ensure that all possible options have been considered, and the estimation of the impact a particular policy option might have (Turoff, 1975). The Policy Delphi Technique was used in this study to construct ideas and develop strong arguments for and against various methods of implementing the UEP.

Panelists participated in three rounds of inquiry. Round One involved the distribution of a questionnaire that asked them to respond to the question: After reading the draft University Environmental Policy, what recommendations do you have for each of the 9 policy items, to incorporate the draft University Environmental Policy into the activities and structure of Dalhousie University? A final master list of 125 recommendations was compiled.

In Round Two, this master list was reported back to panelists who were asked to rate each item for both desirability and feasibility of implementation within the university. A

Likert scale was used to provide a way for panelists to quantify varying degrees of agreement or disagreement with a given item in the Master List. Responses in Round Two were analyzed for measures of central tendency and dispersion for each item. Ideas were categorized into three areas: desirable and feasible; not desirable; and desirable but not feasible. Categorizing and presenting the data this way was considered meaningful as results could be directly used for the development of the final Environmental Policy Implementation Plan. The analysis of the responses from Round Two found that 36 items were rated by the panelists as desirable and feasible, 14 were considered undesirable, and 7 were thought to be desirable but not feasible. Items that did not fit into the established categories were noted, but not used for the final analysis in the study.

In Round Three panelists were asked to review their scores, modify them if they wished, and offer explanations for their ratings of each item. The majority of panelists changed 2-5 of their scores in Round Three. Some stated that the changes were due to further contemplation of the desirability and feasibility for the item to be implemented within the university. Others indicated that they were willing to trust the group's expertise and changed their score on a particular item to reflect the median score given for the item in Round Two. An analysis of the modified scores for Round Three found that the overall categorization of items had not changed. The same 36 items were still rated as desirable and feasible, 14 not desirable, and 7 desirable but not feasible.

The final analyses of the study confirm much of the literature on the challenges, barriers and opportunities encountered with institutional environmental change in higher education. The study also confirms the findings of existing research that promotes the Delphi Technique as an excellent tool to inform the creation of educational and social policy. Specifically this study illustrates the benefits of applying the Policy Delphi Technique to the development of an Environmental Policy Implementation Plan in higher education.

Implications for Theory and Practice

While each individual study of this dissertation addresses the specific implications for theory and practice, a few findings of the dissertation as a whole can be identified and warrant some discussion.

This dissertation provides the opportunity to better understand how declarations of sustainability within higher education are conceptualized and created. It identifies key themes that exist amongst the various declarations and policies that can help practitioners compare these documents in the future. Further, the papers in this dissertation offer an analysis of environmental declarations and policies which may help in the modification and improvement of such documents in the future. The Lüneburg Declaration, for example, was created and adopted by university representatives on 10 October 2001 at the Conference on Higher Education for Sustainability – Towards the World Summit on Sustainable Development (Rio+10) during the writing of this dissertation. The Lüneburg Declaration can easily be compared to the list of themes in policies and declarations established in Chapter Two and discussed throughout the dissertation. A review of the Lüneburg Declaration reveals that the document offers similar sentiments expressed in previous national and international declarations of environmental sustainability in higher education. Additionally, the Lüneburg Declaration repeats many of the mistakes that this dissertation criticizes of past declarations such as no implementation plan or call for universities to create their own institutional implementation plans, and no accountability mechanism for signatory universities. It is anticipated that by disseminating my critique of these documents, I can provide the

opportunity for future authors of policies and declarations to improve or modify their documents accordingly.

This dissertation illustrates a common problem in translating declarations and policies for environmental sustainability from paper into practice. The chapters have demonstrated that many universities have a strong desire to create institutional environmental change, and therefore develop institutional environmental policies or become signatories to national and international environmental sustainability declarations. These universities, however, have encountered many barriers and challenges when trying to implement these documents. The findings regarding the specific challenges universities have encountered are consistent with the literature on barriers to institutional change in general and institutional environmental change in particular. By examining the barriers to becoming more sustainable from both Canadian and European perspectives in Chapter Three, as well as the specific challenges encountered in the implementation of the Halifax Declaration in Chapter Four, we strengthen our understanding, and help universities work towards effective planning for their institutions.

This dissertation also lends support to the idea that some universities use the signing of declarations more as a public relations exercise rather than an actual commitment to creating institutional change. The problem of universities “greenwashing” their image by signing declarations and policies is first introduced in Chapter Two and revisited throughout the dissertation. Chapter Four specifically addresses the possibility of “greenwashing” by signatory universities of the Halifax Declaration. While there were legitimate reasons why the Halifax Declaration could not be implemented in the majority of signatory universities, many of those universities have continued to use their signatory status to promote their university, and have signed similar declarations since the Halifax Declaration before meeting their commitments to previous signatory responsibilities. This dissertation has brought attention to this problem of greenwashing and suggests improvements to policies and declarations in the future to avoid this problem. New accountability systems are suggested to ensure that declarations and policies are both meaningful and effective in the future. This may have financial, political, and social ramifications for universities who sign declarations or create policies in the future, but will undoubtedly strengthen the impact these documents have on endorsing universities in the end.

The papers in this dissertation have established new approaches to the study of environmental sustainability in higher education. While the Halifax Declaration is just one declaration among many, the approach employed in the Chapter Four case study can be applied to any study examining the implementation of a sustainability declaration around the world. Further, Chapter Five offered a practical new approach to aid in the development of implementation plans at a university. This approach can serve as a guideline for practitioners in the future.

This dissertation was based on the premise that universities are one of the key institutions that contribute to a better understanding of environmental issues as well as create solutions for the future. The papers in this dissertation have demonstrated that this is indeed the case. However, if universities are to live up to this responsibility, there needs to be a fundamental change in the way they embrace environmental sustainability. It is no longer adequate for universities to create and sign statements of intent towards environmental sustainability. Institutional environmental change will only occur when rhetoric is turned into reality. This dissertation has provided an analysis of policies and declarations of the past and has outlined a path that will contribute to action in the future.

Ongoing Issues With “Sustainable Development”

While this dissertation focused on environmental sustainability within higher education, it is important to place the research within the context of a larger discussion regarding sustainable development. As mentioned in Chapter One, conceptions of “sustainable development” are contentious. The most frequent criticism of the term is that it is so vague in meaning, that it is often misused. The literature criticizing the term also stresses the danger of the term being used as a political tool. Some governments and government agencies have been accused of using the term to “greenwash” their operations, while focusing on supporting and sustaining development rather than development that is environmentally sustainable. While the difference is subtle, the way the term is interpreted can have major ramifications for human and environmental health.

The misuse of the term “sustainable development” has caused considerable debate in the environment and education fields. Approximately half of the participants taking part in a recent on-line discussion regarding sustainable development felt that the term should be abolished (ESDebate, 2001). This critique of the abuse of the term by many individuals, organizations, and governments is quite relevant to this dissertation. It is important to note that the concept of “environmentally sustainable development” adopted in this dissertation, however, is still relevant to environmentalism and education.

Environmentally sustainable development involves addressing the influence humans have on the world. The concept does not focus on managing the environment, but managing human action. The concept involves finding ways in which humanity can coexist with the rest of the planet. The debate regarding whether to throw out the term will no doubt continue. I suggest, however, that educationists and environmentalists should focus less on words, and more on action. It is clear that humans must make changes to their current practices in order to live in a manner that is environmentally sustainable. It is also clear from this dissertation that universities can play a large role in realizing the concept of sustainable development. It is within this context and with this spirit that the dissertation was written.

Suggestions for Further Research

The area of environmental policies and declarations for sustainability in higher education is still in its beginning stages. As there are only a small number of individuals worldwide working on this particular area of study, there is still much to learn. Although the papers in this dissertation contribute to this goal as they represent a small portion of what we can achieve through further study. Further, more research is needed to explore and answer interesting questions that have surfaced in the process and outcomes of the study.

This dissertation established emerging themes amongst institutional environmental policies and national and international sustainability declarations. A further analysis of declarations and institutional environmental policies will aid in strengthening our understanding of how various institutions frame the central task of becoming sustainable.

Further, this dissertation has illustrated a lack of information regarding the implementation of various policies and declarations in institutions around the world. Future studies should investigate the degree of implementation of such documents to be compared with the findings of this study.

In order for universities to learn what not to do in the future, it is important for them to better understand the challenges and barriers others have faced during the implementation process. It seems that while we are aware of many institutions engaging

in forms of institutional environmental change, much of the information we have is anecdotal. Future studies must include in-depth case studies of universities, which details the internal and external challenges of becoming more environmentally responsible and sustainable.

Finally, it is imperative to identify lead institutions that are champions in traveling along the road to sustainability. We must analyze these leaders to determine the critical conditions for success and share them with all other universities and interested stakeholders.

Conclusions

My experiences during this Ph.D. have helped me to grow as a researcher and as an academic. The skills that I have acquired in the past three years are invaluable, and have made me develop in-depth analytical skills, academic writing competence, and a knowledge of various research methods. While there are many small lessons that I have learned along my journey of researching and writing about sustainability in higher education, the most significant outcome of my research program was the strengthening of my belief that sustainability must be viewed as a multiple-path continuum rather than a final destination.

There is no one way to become a more sustainable university, rather overall areas to improve upon (curriculum development, research, physical operations, etc.). How the university achieves these improvements must be institution-specific. No two universities are alike, and each university must take the path that is most appropriate for it. Human beings are part of a much larger system. As the biosphere changes, so must our institutions. The institutional culture and geographic setting of a university will have an effect on the path a university takes to become more sustainable. I believe it is not important in the long run which path a university chooses, but rather that they challenge themselves to initiate and then continue along this path.

Institutional environmental change within the university requires a broadened sense of participation, a shared vision, a capacity for consensus building, new organizational arrangements, and new ways of working with people. Most importantly, it necessitates courage and commitment. While this dissertation is just a stepping stone to understanding sustainability in higher education, the issues uncovered and examined in this dissertation will contribute to an improvement of sustainability initiatives in universities today and in the future.

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Appendix 1

Halifax Declaration Questionnaire

HALIFAX DECLARATION QUESTIONNAIRE

The following questions will ask you about specific activities within your university. Please circle the most appropriate choice to indicate if these activities have been instituted in your university SINCE THE SIGNING OF THE HALIFAX DECLARATION in 1991.

Q1. Since the creation of the Halifax Declaration, has your university identified a unit focal point on campus to be responsible for developing a sustainable development strategy for the university?

Yes No Do Not Know

Please explain:

Q2. Since the creation of the Halifax Declaration, has your university established an initial sustainable development strategy for the university by the above mentioned sustainable development unit within two months of establishment?

Yes No Do Not Know

Please explain:

Q3. Since the creation of the Halifax Declaration, has your university had a meeting between the president and senior management of the university to explain the Halifax Declaration?

Yes No Do Not Know

Please explain:

Q4. Since the creation of the Halifax Declaration, has your university organized at least one public panel presentation on the challenge and content of sustainable development?

Yes No Do Not Know

Please explain:

Q5. Since the creation of the Halifax Declaration, has your university expressed a commitment to encourage faculty to review curricula to see how environmental concepts might be integrated into their courses?

Yes No Do Not Know

Please explain:

Q6. Since the creation of the Halifax Declaration, has your university sponsored prizes for environmental projects for students, faculty and/or administration?

Yes No Do Not Know

Please explain:

Q7. Since the creation of the Halifax Declaration, has your university examined possible linkage projects to explore how sustainable development elements might be infused?

Yes No Do Not Know

Please explain:

Q8. Since the creation of the Halifax Declaration, has your university conducted an environmental audit of the university?

Yes No Do Not Know

Please explain:

Q9. Since the creation of the Halifax Declaration, has your university participated in a Sustainable Development or Earth Day?

Yes No Do Not Know

Please explain:

Q10. Since the creation of the Halifax Declaration, has your university examined the university in the context of the Canadian Green Plan?

Yes No Do Not Know

Please explain:

Q11. Since the creation of the Halifax Declaration, has your university examined existing research programs to see how they might contribute more to environmental literacy imperatives?

Yes No Do Not Know

Please explain:

Q12. Since the creation of the Halifax Declaration, has your university endorsed the Talloires Declaration?

Yes No Do Not Know

Please explain:

Q13. Since the creation of the Halifax Declaration, has your university distributed the Nova Scotia Round Table on Environment and Economy and the Tufts University papers dealing with education and curriculum development to students and faculty for comment and response?

Yes No Do Not Know

Please explain:

Q14. Since the creation of the Halifax Declaration, has your university designed any new and collaborative environment and sustainable development research projects involving faculty and/or students?

Yes No Do Not Know

Please explain:

Q15. Since the creation of the Halifax Declaration, has your university conducted meetings with faculty, students, and the Board of Governors to respond to the challenge of how the university will deal with environmental literacy and environmental education?

Yes No Do Not Know

Please explain:

Q16. Since the creation of the Halifax Declaration, has your university encouraged innovative educational technologies for communicating environmental issues to the general public?

Yes No Do Not Know

Please explain:

Q17. Since the creation of the Halifax Declaration, has your university developed partnerships with business and industry for sustainable development?

Yes No Do Not Know

Please explain:

Q18. Since the creation of the Halifax Declaration, has your university publicized and supported annual Environmental Competitions among Canadian Universities?

Yes No Do Not Know

Please explain:

Q19. Since the creation of the Halifax Declaration, has your university encouraged your libraries to purchase more documents related to environmental education, sustainable development and/or environmental literacy?

Yes No Do Not Know

Please explain:

Q20. Since the creation of the Halifax Declaration, has your university examined the realignment of existing academic units to address environmental concerns?

Yes No Do Not Know

Please explain:

Q21. Since the creation of the Halifax Declaration, has your university developed teaching teams to serve as models for interdisciplinary teaching?

Yes No Do Not Know

Please explain:

Q22. Since the creation of the Halifax Declaration, has your university established chairs in environment and/or sustainable development?

Yes No Do Not Know

Please explain:

Q23. Since the creation of the Halifax Declaration, has your university designed continuing education programs with respect to environmental issues?

Yes No Do Not Know

Please explain:

Q24. Since the creation of the Halifax Declaration, has your university designed an environmental literacy program?

Yes No Do Not Know

Please explain:

Q25. Since the creation of the Halifax Declaration, has your university developed public forums for awareness and information exchange, education, and public debate?

Yes No Do Not Know

Please explain:

Q26. Since the creation of the Halifax Declaration, has your university established scholarships for work in environmental fields?

Yes No Do Not Know

Please explain:

Q27. Since the creation of the Halifax Declaration, has your university examined the use of appropriate technology that is environmentally sound, economically viable and relevant in the social context of the university?

Q28. Since the creation of the Halifax Declaration, has your university assessed community needs for environmental information, assessment, and technology transfer?

Yes No Do Not Know

Please explain:

Q29. Since the creation of the Halifax Declaration, has your university adjusted the university reward system to account for community service and outreach in the context of sustainable environmental development, as a balance for other criteria for tenure and promotion?

Yes No Do Not Know

Please explain:

Q30. Since the creation of the Halifax Declaration, has your university examined how indigenous knowledge might be given greater weight in curricula?

Yes No Do Not Know

Please explain:

Q31. Since the creation of the Halifax Declaration, has your university worked with faculty and students to develop environmental strategies, policies and action plans for the university and/or the surrounding community?

Yes No Do Not Know

Please explain:

Q32. Since the creation of the Halifax Declaration, has your university prepared a mission statement that articulates a commitment to the environment and general environmental principles?

Yes No Do Not Know

Please explain:

Q33. Since the creation of the Halifax Declaration, has your university encouraged other Canadian universities to endorse the Halifax Declaration?

Yes No Do Not Know

Please explain:

Q34. Since the creation of the Halifax Declaration, has your university established a network among universities in order to share information about the greening of the universities?

Yes No Do Not Know

Please explain:

Q35. Since the creation of the Halifax Declaration, has your university helped in the establishment of an environmental advisory group within bodies representative of a national community of universities to review progress at the national level?

Yes No Do Not Know

Please explain:

Q36. Since the creation of the Halifax Declaration, has your university approached national media services to identify practical ways Canadian universities can contribute to environmental education initiatives?

Yes No Do Not Know

Please explain:

Q37. Since the creation of the Halifax Declaration, has your university pushed to have environmental education placed higher on the UNESCO agenda?

Yes No Do Not Know

Please explain:

Q38. Has your university circulated the Halifax Declaration Plan of to university organizations at regional, national and/or international levels?

Yes No Do Not Know

Please explain:

Q39. Since the creation of the Halifax Declaration, has your university increased interaction between the university community and those United Nations organizations with environmental concerns such as UNESCO and UNEP?

Yes No Do Not Know

Please explain:

Q40. Since the creation of the Halifax Declaration, has your university created any other program or initiative related to environmental education and/or environmental literacy

Yes No Do Not Know

Please explain:

Thank you for your time and your participation. It is greatly appreciated!

Appendix 2

REPORT TO THE SENATE ENVIRONMENT COMMITTEE

**Approaching the Dalhousie University Environmental Policy Implementation Plan:
Consulting With Key Representatives - A Delphi Study**



DALHOUSIE
University

REPORT TO THE SENATE ENVIRONMENT COMMITTEE

**Approaching the Dalhousie University Environmental Policy
Implementation Plan:**

Consulting With Key Representatives - A Delphi Study

by

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Introduction

This report lists the results of a study conducted from February to June 2001 at Dalhousie University. This study used the Delphi Technique to consult with key representatives of the Dalhousie University community in order to gain an understanding of their views and ideas with regards to the most desirable and feasible ways to incorporate the draft University Environmental Policy into the activities and structure of Dalhousie University.

Results

Items the Group Rated as Desirable and Feasible

In the following section, I have listed all items that had a high level of consensus amongst the group as being highly desirable and feasible ways in which to incorporate the DRAFT University Environmental Policy into the activities and structure of Dalhousie University. When the group responses from Questionnaire II was analyzed, these items listed below had a high median score for desirability (5), a high median score for feasibility (4-5), and a low interquartile range (0-2). The median is the middle score in a set of ranked scores. The interquartile range (IQR) indicates how widely the responses differed from one another; i.e., the greater the IQR the more widespread the responses were and the less consensus there is among the respondents. I have also listed the comments given for each item below.

Policy Item 1: Foster environmental literacy for all and educate for environmental citizenship.

Item 21

Public Lecture Series on the Environment.

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- I think this is somewhat desirable although often, the lecturers would be preaching to the converted so I'm not sure if this would have a great effect but it is an effort and even if a few "unconverted" people popped in to each session, as long as the cost was not severe, it would be worth the effort.
- May be less than well attended, efforts could be better spent elsewhere
- To score this as highly desirable is to score other topics (e.g. cancer research) as less desirable. I am unwilling to do that.
- SYC is working on this for next year and would be happy to talk to anyone else whom is interested.

Item 20

Sponsor events and activities for the University and community to discuss environmental issues

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- I think there are so many ways that the university could spend its money to help its students that I don't think allotting it to discussion groups would be a great idea. Discussion usually does not result in anything so sponsorship financially would not be great. Sponsorship in-kind, however, or in name would definitely be acceptable and feasible as it would get Dalhousie involved in the community somewhat, even if they are just seen as environmental supporters.
- there comes a point when you just don't want to talk about anything that isn't central to what you do - so much university time is diverted to other stuff - this might be just another dull and good diversion
- Again, the community does not require help from the university to discuss environmental issues. In fact, I would argue that the existing structures (EAC, CNS, etc..) already take on much of this work. Dalhousie could, however, support their initiatives.
- I thought this was a pretty good idea, but didn't think people would be interested. My lack of imagination couldn't see people getting excited about this.
- If "sponsor" involves money then it is wasteful. The university should spend its money on research and education, not pet projects. For an example...I enjoy jazz. Should tuition be raised to sponsor a jazz festival because it makes me feel good?
- The university doesn't have much presence in the community for community issues so this might be a good forum to start improving this.

Item 17

Prominently displayed environmental policies and goals for all university services – i.e. waste reduction targets

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- This would be relatively easy to accomplish and would be desirable to a point but it's not the best thing to just display policies and goals if people are not acting on them - it's too easy to just walk by and ignore the signs, no matter how prominently displayed.
- This would be nice, but it would require work (though now that I think about it, a student could put it together) and I'd rather focus of making targets and reaching said targets than worrying about posting them .

Item 16

Create an e-mail newsletter or website citing environmental achievements of university faculty, staff and students

	Group Score
Desirability Median	5

Feasibility Median	4
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Comments:

- I honestly don't think this would garner many hits or that many people would really read the newsletter. We get too much information by email and mail as it is so while it is relatively feasible, it really wouldn't accomplish much. I believe in recognition when warranted but I think something better could be done to get more notice when recognition is deserved
- I think this worthwhile information could be incorporated into the already existing Dalhousie website and Dalhousie newspapers. No need to have yet another newsletter.
- This is entirely feasible and would be a good job for the university webmaster or computer studies students.
- I think there are far too many newsletter and websites already. This kind of information could be included in existing vehicles
- Clutter? Overkill?
- Once again I'm don't think e-mail newsletters get read for the most part. On the other hand it would not be difficult to circulate if there were worthy environmental achievements so it is probably a good idea.
- Dalhousie needs to show that they are part of the solution to environmental and social problems not the cause of them. Thinking about how to do this might influence better choices. I think most students think of AI and the World Bank as two example of evil empires with now public input and no heart and soul. I would like to go somewhere that had a soul.

Item 13

Actively work towards the greening of all curricula

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- If this refers to keeping everything electronically, then it's not the best idea at the time, nor is it the most feasible. Although it might be considered ideal, at this point in time, there would be far too many problems with going electronic and it wouldn't be worth the effort at this time. Perhaps down the road but in this point in time, when some people still don't know how to use computers, it is not realistic. If other ways of "greening" the curricula are possible, then fine, but if we're talking about moving to electronic only, then I don't think it's a great idea.
- I'm not sure how easy this will be. It has to be integrated into the curriculum with out losing parts of the current curriculum through time constraints, etc.
- Again, all curricula can incorporate environmental issues and identify how subjects related to concepts of sustainability.
- If I could rate this "5" I would. Should calculus be made green, at the expense of an engineer learning to build a safe bridge? Do you want the person who selects your chemotherapy to have missed the lecture on doing interactions because it was replaced with a "green" lecture? God save us all from such ideas.
- As with many of the items, I believe it is all too easy for folks to score a "5" without giving the issues any real thought. Given the stresses under which our faculty are currently labouring dues to inadequate resources, I question whether this item is even desirable, let alone feasible.

- I'm not sure what is meant by greening the curricula .

Item 6

Have Public Relations give updates on environment issues

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- Sure, I think this would be feasible but I don't really think it is PR's job to give updates on this type of thing, really. I mean, if it directly relates to students and faculty and is really newsworthy, then fine, but otherwise, their time could be better spent promoting Dalhousie.
- I particularly don't much care if the public knows. If they really care they can ask. I suppose it would look good for Dalhousie if they had good things to say, and it may be a good influence on other schools and the community at large.
- small danger of boring people into hostility
- This type of service is already in place and Dalhousie is the last institution to be giving the community updates on environmental issues. Maybe this type of activity would be warranted once Dalhousie cleans up its own act.
- What does PR know about the environment?

Item 4

Create an Office of Sustainability to co-ordinate, review, implement, educate, monitor, advocate, and draw attention to environmental policy and implementation on campus.

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- It would be nice to have this as it would then be coordinated in one spot, allowing for consistency but in comparison to other things campus needs, it wouldn't rank first on my list of needs. It would also, again, cost money to implement this, and where will this come from.
- This is absolutely necessary in order to create the environment for change. However, as noted before, administrative commitment and resource allocation is required.
- Sounds like work and money, but I guess that it would be a good and relatively feasible venture.
- more bureaucracy
- Creating an office means "pay staff". A secretary of a small office staff, with computers, etc. will run to ¼ million dollars per year. Those are tuition dollars that could instead fund a research lab that may learn why the cod stocks have still not recovered.
- It is neither desirable nor feasible to create yet another office which would inevitably be a drain on scarce resources. My experience is that such offices become self-perpetuating and bloated

- I like this idea, but I would be worried that it could be started up without looking at the long term commitment needed from the university in order to keep it going.
- TOP PRIORITY. There are lots of students, faculty, staff and others doing great work on campus. If this was better focus through this office the achievements would be fantastic for the university and the student, staff and teaching bodies.
- I thought this was an excellent idea to keep up and maintain awareness however was not sure if we had the resources.

Item 2

Make sure every garbage pail has a recycling and compost bin beside it

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- This is a great idea – simple, not overly costly and the public can easily comprehend these bins/pails. However, it will depend on campus's ability to collect these things and how costly this might be –this will affect how feasible it is. Seems simple but may be a bit more complicated than one might think.
- Why would you put a composting bin beside garbage cans where there is no chance of composting material. Put them where there would benefit and leave it at that. Feasibility requires further study.
- It seems more feasible now that I think about it. I guess that we do already have compost and recycling bins by many of the main garbage pails. However, I am concerned about the lack of success of the compost bins (they get a lot of garbage put in them).
- This is less desirable relative to other items and thus my score sticks.
- I can't get enough in my building now? How are they going to provide more. Compost bins in offices will smell and attract bugs
- There is a garbage pail under my desk. I lack space for 2 more items. The exercise of walking 20 steps to recycle has not hurt me yet. The word "every" is why I score this a 1 on both counts
- The last thing we need is to encourage people to eat in their offices, which is what a compost bin would do. Every office already has a recycling bin, and I don't even have a garbage pail anymore.
- It's possible physically to do this, but having a compost bin next to every garbage pail will never work through implementation/use.

POLICY ITEM 2: Encourage scholarly and applied research into the problems of environmental degradation.

Item 29

Become a strong partner in the Atlantic Environmental Research Network

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- I'm not sure what this organization does or accomplishes so I can't really comment on whether or not it would be a good idea to become a strong partner, although I'm sure it would be relatively feasible.
- I would prefer to see Dalhousie spend more time focusing on itself rather than on developing partnerships with networks. It's time for some concrete action and less talk.
- I don't know what the Atlantic Environmental Research Network is.
- Feasibility depends on AERN's partnership rules – early indicators are not hopeful to me
- don't know what it is.

Item 28

Sponsor a national prize for outstanding research in finding solutions to environmental problems

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- This is desirable but if it is a national prize, I'm not sure Dalhousie could fund this type of thing or what it would involve so it sounds good but I'm not certain of the desirability as I'm not sure what it would involve to have this happen. This ties into feasibility as I'm not aware of what is involved in setting up such a thing.
- Well, I guess it is probably feasible. I don't really know where prize money comes from, so I guess that I don't really know how feasible it is.
- canny grant getters and award winners will find ways of making almost any research appear to fit = should this be focused at all?
- Dalhousie claims to be financially strapped and offering prizes does not jive with economic reality. Let's focus on investment for environmental sustainability on campus.
- Change this to "research on environmental issues" and my score changes to 5 on both counts. My worry is not the problems we know about; it's the problems we've not learned of yet. Let the community colleges work on the solutions (e.g. tax folks who drive gas guzzling SUVs...a no brainer) and let the universities tackle the cutting edge research or questions (e.g. is the reason why we have seen less global warming than expected because we have been using very dirty, sulfur-rich fuels??)
- I'm sure that Dalhousie is or should be in the position to sponsor a national prize
- This will have little impact

Item 27

Award scholarly and applied research in the environment

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- If this is done at the same level as other departments, fine, but I would not recommend taking awards from the pool of all departments to give extra to environment. I'm not sure what this involves, either, so I'm not certain of the feasibility.
- Well, I guess it is probably feasible. I don't really know where prize money comes from, so I guess that I don't really know how feasible it is.
- I agree that it is very desirable to award scholarly and applied research in the environment, however, not through monetary means.
- This is too vague

POLICY ITEM 3: Facilitate environmentally appropriate choices by its employees.

Item 62

Provide an avenue to allow for an environmental suggestion box

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- In principal, this sounds like a good idea – it is somewhat desirable but I doubt that realistically any really fabulous suggestions would come out of it. Most suggestions that would come from the general population would have been given a million times over and I think an environmental rep for students that sat on an environmental committee for the university would be much more useful. It would be feasible to have a suggestion box but who is going to monitor it and keep up with suggestions.
- though why "an avenue to allow....."?
- I find that suggestion boxes, being anonymous, get ignored
- Already exists
- If you are going to have a suggestion box, you need to ensure that there will be adequate resources to carry out those suggestions. That includes both a requirement of numbers and influence for the people who would staff the suggestion department.
- Create a website that people can go to as well to learn about environmental initiatives at Dalhousie and have an electronic suggestion box as well as others on campus.

Item 61

Only renew contracts with environmentally friendly product companies

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- In principal, this sounds great but it really is a bit unrealistic. It would be very desirable to renew contracts with environmentally friendly product companies but not at the cost of rising tuition, for example. As for feasibility, if it were that easy, I'm sure it would have already been done. It's not feasible to raise costs by 50% or whatever to get products that are environmentally friendly if the ones you are using are not environmentally harmful.
- I believe courts have favored the suppliers in related court cases. Would we do this even if it meant shortages of supply...or a major price premium? I don't think so.
- Yeah we could do this. But perhaps we should just use such an idea as a "threat" (Dalhousie could pressure them to comply with Dalhousie's demands in return for contract renewal) in hopes of convincing companies to start using environmentally friendly products. I certainly think that Dalhousie should terminate business ventures with companies that aren't at very least willing to try to be more environmentally friendly, but I am always wary of absolute policies that demand all or nothing. They

can leads to bad business decisions and the termination of valid contracts that may be saving Dalhousie money that it could contribute to environmental funds.

- it's often difficult to be sure about environmental friendliness especially if you have to rely on other people's assessments, and if not, it takes more time and energy then we have - who makes the assessment of it?
- Again it's my mistrust that led me to answer as I did. I didn't think the university would really go for this idea. I'll keep my score the same.
- Sometimes necessary things are not environmentally friendly. One can't restrict departments by dealing only with environmentally friendly product companies
- Cost is NOT irrelevant. Cost means tuition. Doubling cost means doubling tuition. That spells the end of the university. Is that a gain, to lose the only university east of Montreal that does world-class research into the global climate system?
- I have a concern about fairness here and accessing people unfairly for problems that may be connected to our limited conception of things and limited logistics
- I question the feasibility for the same reason as the other procurement item.
- Why not we have the power. If the university is going to use the students as consumers to invite companies on campus then we ask that they be environmentally friendly.

Item 58

Place a high priority on building environmentally friendly buildings

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- As someone who suffers from allergies, I wish all buildings were environmentally friendly. I would hope it would be feasible to do so but if it meant another million dollars, I'm sure the university would not foot the bill.
- Has a feasibility study been done? If not, how can we be so sure it is feasible?
- This is a really nice idea, but costly and I think that we should focus on things that are addressed on a daily basis. We can encourage this, and even suggest that there be some basic guidelines that make buildings more efficient (which Dalhousie probably focuses on anyway, as it would be in their best interest). But, I'd rather see the focus, funds, etc. going to things like recycling, purchases, etc. that happen daily and will continue to happen each year.
- again, there are two major hindrances 1) cost and fear of extra costs 2) uncertainty about it
- I intend to keep my original feasibility score based on my impressions of administrative dedication to environmental sustainability and their willingness to dictate building design when much of the building budget is supported by private industry.
- Alas, not feasible because of budge factors. I work in a TERRIBLE building, with air that makes us sick. This fact illustrates feasibility constraints. In winter fresh air means high energy costs. Dalhousie cares less about health and environment than in the bottom line, ALAS!
- Feasibility? Expense? Limitations in our ability to determine what is harmful and what is not
- I'm still not sure about the feasibility because of what I assume must be higher costs for construction of environmental buildings. If we can adjust our budgeting structure

to look at the life cost of the building I would agree with higher feasibility, but if not I don't see it happening.

- I'm not all that hopeful about success here. I'd like to be, but I think the forces of conventionality will be strong

Item 53

Educate employees and students on environmental purchasing choices

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Depending on how this would be carried out, it would be desirable. To educate employees and students, the education would have to be effective, otherwise, it would be a waste of time and money.
- You can try to educate people, but they will only learn if they want to listen. It would involve lots of hard work and such.
- employees - education will only work if supported by budget and general purchasing culture - if you tell the department administrator to buy, say, more expensive but environmentally friendly supplies, then that might reduce some other necessity; both - education only effective if knowledge is desired and necessary and useful
- I guess it is feasible...a waste of time and effort, but feasible
- I just believe it will prove to be a whole lot more difficult to achieve this goal than does the rest of the group

Item 52

Have memos circulated on Notice Digest outlining how to make more environmentally appropriate choices

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- This would be desirable – many people get Notice Digest and read through it, only taking a minute or two. As for feasibility, it would be relatively easy to do this, but someone would have to be responsible for it - it would be a matter of finding someone to coordinate the effort.
- I scan the Table of Contents and just don't bother with most items - guess most people like me
- The last thing employees require are memos. I would prefer that heads take the lead and provoke challenges between departments to reduce waste and make environmentally appropriate choices.
- Apparently more people read them than I do, but I think that most offices at the university are already saturated with memos and notices that for the most part don't get read.
- People won't be excited by this avenue of action

- Better if they were emailed as well to reduce paper or print on reused paper and create notepads with previously used paper.

Item 51

Offer cash discounts for the use of green products and services (E.g. food service containers, print shop services, eco-logo products, etc.)

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- I like this idea but it may not be fair to people who cannot use certain products for whatever reason. If it were a product that anyone could use, then it's great as it is a reward for making environmentally conscious choices but if it is something that some people may not be able to use or take advantage of for some reason, it would not be fair to penalize someone on something that was not a consequence of choice. Again, it may not be entirely feasible to do this as, at the financial level, someone has to administer the discounts, which could be a major job.
- May have a negative impact on the financial management of our food services operation. Requires study.
- Yes, yes, yes. Especially in the coffee shops. Though this will be hard to do as Dalhousie will have to negotiate with outside companies in some cases.
- My friends who own Coburg Café thought this was not a system that would work. It would be too much for a small business to keep track of these things. Also, when Tim's tried to introduce the 1 cent refund on their cups, I don't believe that worked. Another idea needs to be dreamt up.
- Most departments don't use cash. Most products are covered under buying sensibly and dealing with environmentally friendly companies
- What is meant by this? To whom...the vendor or the purchaser?
- I'm a little uncomfortable with this as a primary motive to act (focus too much on self-interest as primary interest), and seems economically problematic as well.
- I think this would be very feasible because each service the university provides could be looked at when current contracts expire. For example, when the Second Cup has to renew its agreement with AI that would be the ideal time.

Item 49

Pre-recycling: purchase items that can be re-used many times

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- This option is desirable depending on what you're talking about – since I'm not sure what type of items this is referring to, I gave a four instead of five.
- Has a feasibility study been done?

- Hmm, some science tools have to be disposable for reasons of safety and experimental integrity.
- how valid is this for most of our purchases - for instance, one of our big items is paper, another "appliance" type purchase is computers - sure they get heavy use, but there is always pressure to buy new as tasks and software change
- My feasibility score (again) reflected my experience with the availability of pre-recycling items. I will change my score to achieve consensus on an area I know little about.
- We already have china for catering and reusable toner cartridges. But departments still order paper plates and printers don't work with reusable toner cartridges, if they've been purchased in the last year. It's not enough to say we purchase reusable items. They have to be of top quality. Also, departments and businesses don't seem to benefit from selling these items. My lack of faith again will not allow me to raise my feasibility score.
- convinced

Item 47

Mandatory use of proper air filters where windows don't open

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- I have suffered in buildings that were not properly filtered and I think if windows are not an option, this is something that shouldn't even be discussed, it should just be available. This is something people breathe in and out all day so if you can't get decent air inside a building, it's just not right. I don't know how feasible this is, however, because it involves testing and money to do possible renovations, etc., unfortunately.
- This is a simple matter of a management directive. Do we know this is not happening now?
- This would be hard and costly in some of the nastier buildings, like the Life Science Building, which likes to think it has ventilation, but just re-circulates dusty stall air. This may be too costly in some areas as it may require ventilation system overhauls.
- the air filters may be the least of the problem - recycled air, little mixing, long system with impurities on the way etc
- This statement obviously stems from a specific worry about indoor air quality. Air filters on hide a much larger problem associated with outdoor air quality and indoor building design. I am keeping my initial scores.
- Should be covered under Health and Safety Regulations
- God, I wish it WERE feasible. I am an activist on this issue. I've spent hours in committees, talked with university engineers and my personal friends who are engineers. The cost of fixing the air in my building? Several hundred thousand. The budget?
- We do use proper filters where windows don't open (and even where they do) but we have insufficient resources to ensure that they are changed in a timely fashion I didn't and still don't know anything about this issue so I will go with the majority

Item 43

Accept assignments and papers electronically

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Well, this is theoretically a good idea but we can't forget that all people don't have wide access to electronics these days. While most can find access, I don't think it is possible or completely desirable to have a paperless society. Electronics can fail quite easily and it would be too difficult to monitor excuses (but I sent it, honestly, you just must not have received it.....I lost it on the computer and can't find it...). It may be more of a hassle than we think!
- ...or on good quality *used* paper, or double sided....
- not all work is written, and I do not find it easy to comment and edit on a computer - I and many faculty prefer paper to work with
- Although there may be a time saving for students, I don't believe that there would be any savings on paper, ink, etc. The instructors almost always print out assignments and thesis chapters for review so the supplies are still used.
- This is entirely feasible at Dalhousie University. It will take initiative from professors and lecturers to make the change.
- I used to think this would be great, but I've seen that it really doesn't save anything. Many Professors still print them out to read and they still get lost, etc.
- I disagree with the group. This is a trivially simple way to save a lot of paper. Those Professors who don't know how to do this can learn. So can the students. The piles of paper generated by students are frightening. P.S. If you had said "require", I would score it 1 on both variables
- I don't feel qualified to comment. Some faculty do accept electronically while other assignments (e.g. architectural models) don't lend themselves to this format
- Forces students and professors to work within a medium that they many not want or desire to work in. I don't like this one.
- I have marked a number of course and 60% of them could have been marked electronically. It might require additional computer moneys to ensure markers are using high quality monitors. This would also make it very easy to check papers for plagiarism.

Item 42

Only offer environmentally friendly options for cleaners

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- We already use environmentally friendly cleaning agents only
- I think it is desirable to have options there, but they may not always be chosen for various reasons so if it is unrealistic to provide an option that will not be selected for whatever reasons, why offer it as an option in the first place. If all options were able to be chosen, then this is a good idea.
- I can see the desirability, but not the feasibility. Further study would be required.

- the first idea where I have been more optimistic than the majority!
- Absolutely feasible, likely more so than sending memos around to staff!
- We could only offer a magic wand, if we wanted. Or pennies for a wishing well. But in the REAL WORLD, there are materials which must be cleaned effectively. Chlorine is not environmentally friendly, but people in Walkerton died for want of Chlorine

POLICY ITEM 4: Set an example of environmentally responsible consumption.

Item 83

Encourage car-pooling on campus

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- I think car pooling would be great – I did it myself for years. Now that I work here, however, there is nobody to car pool with from my area that works here so unfortunately it is not feasible and I think that there are many people that travel from a great deal of areas to Dalhousie that find themselves in the same position.
- OK, but let's stick to the issue, environmental sustainability for the University, not it's employees.
- This is a totally feasible exercise. The item calls for an "encouragement" of carpooling.
- I didn't think this was feasible because when I was pushing to have the people carpool for car free day in April, the amount of opposition was huge. Upon further investigation, people don't want to give up their time alone in the car. They would take public transportation if it was FASTER than the car, like the TTC or train systems in other parts of the world can be. Also, the president of the union for support staff (NSGEU) said she had been lobbying for this for years. The same comments came back. Even if employees were given incentives for free parking, gas bonuses, etc, they were not interested. Go figure. So, I didn't feel it was feasible. It would be a waste of time.
- This is not feasible because it can only be enabled by penalty (or what is equivalent, in total effect, reward) and this will not fly if the decision is unable to vote, not fiat.
- A simple announcement (regularly) counts as encouragement to me (and the focus was on encourage...not "make sure it becomes a reality"
- From my limited experience looking at the Vancouver car pooling system it doesn't look like a terribly difficult idea to implement.
- I don't understand why this is not feasible other then the parking committee from what I hear is not made up of people motivated to do this. We need a Environmental co-coordinator to organize this. Backing out of the carpool.ca program because of personality conflicts is a disgrace and hurts all AI students, the environment, residents and the image of the university. Ban the building of new parking spots to encourage policy people to encourage car-pooling. I can be done if motivated people are in positions of power.

Item 78

Define waste (toxic, regular garbage, etc.)

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- My 3 here reflects my uncertainty. To me, I think I have a pretty good idea what is toxic and what is regular garbage, for example, so it is desirable, I guess, but I don't think it is particularly necessary and I'm not sure what purpose it would serve. I think it would be feasible but would be more of a nuisance than anything when I think most people know the different types of waste.
- if I have doubts about feasibility they focus on things like students spraying fixative and adhesive and paint out of hours (I work in faculty of Architecture) - defining won't make much difference if 1) alternatives cost more 2) alternatives not available 3) alternatives not as good
- I may be dense, but I didn't see the advantage of defining waste. For those who are interested, they already know, and for those that don't give a damn, they will follow like sheep if the disposal units are clearly marked and enough people are doing it. People who do not know waste, in this recycling environment in Halifax, then they must be approached in a different way in order for them to be encouraged to do less harm. These people need to know what difference it makes whether they compost or not. They don't need definitions but follow through on what happens to the waste. I bet we would all be quite surprised as we don't know what to do with the extra recycling we are already picking up. (I should have suggested the 'final outcome blurb' at an earlier stage, however, I didn't think of it then. I guess it's part of the process of this survey. Good outcome...)
- Knowing Dalhousie as well as I do, I query the feasibility of getting a definition of waste that all can agree on.
- From my experience on campus I haven't had to deal with much more than regular garbage as waste, but it seems like most people think it would be a good idea.

Item 77

Define the word efficient before trying to figure out how to set an example

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- I think this is desirable as it is a waste of time to work something out when everyone is on a different page. As for feasibility, I'm not sure it would very easy to get a group to agree on an accurate definition unless it would pertain to various aspects (i.e., different definition depending on what you were looking at).
- slight worry about spending time on definition rather than action
- In retrospect I think this is niggling. Efforts should not be focused on academic fine points and more on implementations of solutions.
- I thought this was ineffective but probably feasible, since defining terms is something a university is good at. It's another white paper. At this point, we have enough information to know what a good example is. However, upon further reflection, if we defined that efficient was 0 waste or 5% waste, then I could see a benefit of this type of goal setting.
- It may require some thought and effort, but it certainly seems feasible

Item 72

Encourage recycling and composting on campus

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- This is certainly desirable. Feasibility is another issue. From the standpoint of encouraging, I think students could certainly be encouraged but in the end, they will do whatever they want, so I'm not sure this idea would result in many changes since people on campus have always been encouraged to be environmentally aware.
- Again, people already know that recycling is a proper thing to do. Focus should be placed on prevention of waste in procurement, packaging, etc... Also, is this policy not already in place on campus?
- Depends of what you mean by "encourage". If it's simply repeating a mantra, no problem, but if you're really looking for action, experience would say my response to feasibility (2) is correct
- I suppose "encouragement" is feasible, but getting a change in behaviour will be difficult
- Great Idea... I have signs made and just need money to print them and places to put them that will not be torn down. Please call anytime... Also I talked with Mike Murphy and a food services guy that I can't remember the name of about having mugs sold next year on campus and a well advertised 10 cent discount for coffee or other drinks when you use the mug. This should be done... I

Item 71

Create an environmentally friendly procurement policy

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Policy tends to drag out – it would be somewhat desirable but forming committees to agree on a policy is wasting time when real action could be taken, I think.
- This cannot be done without commitment of resources.
- Ah, yeah, we could probably manage this. I didn't give top marks mostly because I am not to familiar with what it might entail, so I don't truly know how hard it might be.
- similar concern to local investment - while purchasing agents under pressure to keep costs down, then this might put the burden of a mixed message on someone fearful for her job, trying to serve two masters
- I'm not sure how feasible this was since policy formulation takes forever on this campus. However, I guess if time is not a factor, then it would be good thing to work toward. A lot of my answers, I'm starting to realize, were based on my impatience with the system, because my bias of the system is slow and ineffective. But that is not completely true. Things do get done when I take a calmer look.
- Sure we could do this. The effect? To skew costs, to skew safety issues, to skew equity/gender issues. All in all – undesirable!
- I'm a little concerned about anything that sounds too forceful or imposing
- As with the investments I think a comprehensive procurement policy would be very labour intensive. I imagine that there would need to be a lot of research to adequately gauge a suppliers "environmental friendliness".
- A top priority.

- I'm not exactly sure what a procurement policy is and what it entails.

Item 68

Buy everything locally as much as possible

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Sure it would be desirable as we would all love to support our locals but feasible? Not always! In the interest of keeping costs down, it is not always feasible to go with who you want to go with – sometimes, the winner is the lowest price and that is just reality.
- This contravenes legislated procurement policies, which is neither desirable nor feasible. In any case, I fail to see how this would support environmental sustainability.
- This would be good. But, as in the investments, local is not always best. Dalhousie may be better off buying some things from elsewhere. Also, sometimes cheaper is better, and cheaper may not be local. I certainly approve of the idea, but I don't want my tuition to sky-rocket just because Dalhousie wants to buy from Halifax instead of from Moncton, NB.
- the "as possible " seems to me to cover feasibility
- I agree with the group that buying locally is extremely desirable.
- The group feasibility score is out of sync with previous responses. I assume the "4" is because folks think you can get everything locally, but the item has a qualifies (i.e. "as much as possible")
- Again, I'm concerned about too much of a fixation upon the local (provincialism and/or nationalism)
- Similarly to the other buy locally item, I think there is an advantage in buying locally because of reduced transport costs and environmental impact, but I don't think the fact that a supplier is local should be the reason we buy from them.
- Work into the procurement policy

POLICY ITEM 5: Manage its buildings and grounds in an environmentally responsible manner.

Item 93

Develop an integrated waste management system campus-wide

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Chose 4 here because what I think this is sounds pretty good but I'm not sure of what it would involve completely and didn't feel I could give a 5 rating without knowing the details. Same for feasibility – without knowing what would be involved, I felt I couldn't comment on the feasibility.
- We need to focus on reducing waste, not just finding new ways to deal with it. Also, if they haven't figured it out yet, what makes you think they'll ever get something worked out. Something like this may require some big extra funding, which would probably be reflected in tuition.
- as the campus is so varied, there might be an advantage to helping each section do this, so that for simple things which most areas have in common there is a campus wide system, but there isn't a great deal of time spent devising systems for local peculiarities (human body parts, animal wastes, radioactive materials etc)
- I would like to keep my score since I believe too much time is focused on the waste system rather than on the elimination of waste in the first place. A waste system is a reaction to "excess" and efforts should be funneled towards waste reduction activities.
- This is undesirable because it is inefficient, economically and environmentally. Encourage individual, not campus-wide, environmental action, and you'll see higher participation rates and more innovation.
- This need to be done. The haphazard program that exists now needs to be improved and consistency needs to be achieved across campus and with Halifax as a whole. There should be discussions between the HRM and AI about how to educate for recycling at the university level and how to integrate the two collection programs.

Item 88

Start a composting station on campus

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- As you've noticed, I tend to give 4s when I'm not sure of what something involves. This sounds great but at what cost. Would the cost of accomplishing this (which would be great as you can see by my 4) take away from something else that students would wind up paying for in the end. My uncertainty keeps me at a 4. Feasibility I was not sure of as I live in an apartment where there is no availability for compost so I'm unaware of what it entails.

- I don't think people (i.e., the students) are ready for this yet. I have heard horror stories about what is put into the few compost bins that are available. It would take a *lot* of effort, time, and money to get something like this to work. This may be feasible in a few years as students start to clue in and become accustomed to curb-side composting. Though, I definitely think that we can and should get all of the cafeteria and food businesses to get off their butts and compost.
- again, I fear that there will be concerns that this will either be a liability (bad smells, messy) or a drain on someone's time to prevent that
- I am changing the feasibility score to reflect the group score. My initial score was based on potential Dalhousie commitments to the Halifax Regional Municipality. Obviously it would be favorable to keep organic wastes on campus for composting and redistribution purposes
- Make it a project of the SRES and other departments
- This is just plain silly. Land on campus is very valuable and should be used for university purposes of teaching and research. The siting of composting stations is a technical and economic issue. Discarding economies of scale based on emotional desires has the effect of hurting, rather than helping this very noble cause.
- We have wanted to do this for a long time but are constrained by lack of resources, chiefly, space and human resources
- I have been working on a pilot project for composting at the Industrial Engineering Grad building and even with only 7 students that I have tried to show what can and can't go in the bin we have plastics ending up there. I don't know how feasible it is to have large scale composting, although I think the chances of success are increased if the university pushes environmental awareness through a variety of avenues.
- Buy an Earth Tub, put in the backyard of my house, on AI property near the NSPRIG community Garden and start putting food scraps from the back-end of food services in Sept.
- I was not sure if we had the space or money to put this into action.

Item 86

Use no pesticides on campus

	Group Score
Desirability Median	5
Feasibility Median	5

Comments:

- We DO NOT use pesticides on campus already!
- My 4 for desirability does not reflect that I do believe that pesticides should be limited. Without knowing all, however, I'm not sure if everything done by landscapers on campus could be done without pesticides. I believe in the principal but when it comes to the bottom line, students are not going to come to a school full of bugs or a school that looks horrible aesthetically. I think pesticides should be limited to the fullest extent but I'm not sure if they can be eliminated entirely while at the same time maintaining the landscaping Dalhousie currently has. I think it would be feasible to do so to a certain extent but I don't think it would necessarily be easy and I think there would be cost involved.
- And let the bugs rule?
- wondered about the use of pesticides in particular areas, like the animal care centre in the Tupper - great ideas generally for landscaping, indoor plants, etc
- This will be a moot point as of 2003 in the HRM due to local by-laws.

- This is being done already for the most part is it not except for pesticides inside the university in some cases?
- I wasn't sure if this was feasible because I'm not sure what factors come into play when deciding on environmentally safe products.

POLICY ITEM 6: Invest its financial resources in an environmentally responsible manner.

Item 105

List all funds Dalhousie is currently invested in.

	Group Score
Desirability Median	4.5
Feasibility Median	5

Comments:

- It is desirable but how feasible would depend on the format of listing – to produce a list sounds easy but where is it being produced and who is doing it and keeping up with it. These issues would need to be ironed out before determining if it were highly feasible.
- Why would this be appropriate? Is this an exercise in morality?
- Somebody is bound to find some loophole somewhere that protects the privacy of some investments, so it may be hard to get Dalhousie to list *all* investments. I'm not sure how desirable it is. We could probably find it out on our own as students (as we have an interest in the financial future, etc. of Dalhousie). Plus, I'd rather focus our attention elsewhere. Having a list of investments won't change them, and we want to make changes.
- I think it would be easy to list the funds that AI is directly invested in, but it would become very difficult to show where the money trail continues to go.

I do not know whether or not this would be feasible to do and I do not understand how this would aid in the policy.

101

Invest locally and with long-term rather than short-term vision

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Ideally, this sounds great but universities are a business (unfortunately at times) and I'm afraid that if it comes down to a significant increase in cost, it may not be desirable to raise costs in tuition, etc., to offset buying locally. The idea is great but not if the consequences are undesirable. For feasibility, the same rule will apply – it just may not be feasible to raise costs to invest locally with long-term vision. The ideal is great but the consequences may dampen the initial outlook.

- There are two issues here. If by investing locally, you mean purchasing locally, this contravenes legislated procurement policies, which is neither desirable nor feasible. I would agree that the second issue, investing long-term, is desirable and feasible.
- Investing locally does not insure investments in responsible groups/companies. Sometimes we have to go abroad to find suitable investment opportunities. It would be better to invest in ethical, environmentally sound groups/companies than to invest in Irving Oil. Long term may be good, but it shouldn't be exclusively long term. There should be some short term investments to help fund short term projects. Variability is key in good investments.
- This idea may have small feasibility simply because some people with lots of financial lingo may be able to convince people who aren't in the know that this is a bad idea. Again, it may take some work to convince people to be honest and reasonable.
- Having tried, with my own bank and my own RRSP, to invest in Nova Scotia rather than the US, and been met with disbelief, I imagine that there will be considerable resistance from economic advisors and people in Dalhousie concerned about making the best return possible from investments - there would actually be an ethical dilemma for people charged with getting good returns and charged with investing locally - not always compatible
- I don't think this is feasible. The Senate is not that enlightened at Dalhousie. They need the security of the "tried and true" funds. Having attended seminars about the ethics funds, they are not as profitable as conservative investors like. I keep with my original scoring.
- The purpose of investment has nothing to do with local versus non-local. Should Dalhousie invest locally, in heating its buildings with high-sulfur ore from Cape Breton? Should it buy expensive locally created products, with the consequence of having to treble its already shamefully high tuition?
- The University has to balance its commitment to the local community against the need to be a responsible steward of the funds entrusted to it. Also, I'm not persuaded that the University does not have long-term vision.
- Not 100% sure of the desirability of such an exclusive emphasis upon the local and upon long term at the expense of short term concerns
- I agree with the long term versus short term vision but not the locally portion of the item. I believe that best practice should decide where we invest and if that can be found locally then all the better. Local companies should not expect our investments just because they are local.
- Investing in Nova Scotia is very important for the future of the university and the province. AU has a responsibility to do this and should be investing locally in long term sustainable investments that improve the quality of life of all Nova Scotians.
- I thought that this might be easy to do - who knows I don't have much experience with business and politics.

POLICY ITEM 7: Lead in the community, and in so doing provide an environmental role model for other universities and organizations in Nova Scotia, Canada and internationally.

Item 112

Make sure that the development of an implementation plan for environmental policy is an inclusive process

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Stay with 4 on these because I'm not absolutely certain what level of inclusion is being targeted – would be great but the developers need to be qualified.
- Very difficult in a decentralized organization such as Dalhousie.
- In theory it is feasible, but I find that there is always a little red tape or some higher up who seems to think that they can exclude a particular group/idea. So, it will probably involve a fair amount of work and some hard-nosers who want to follow the "inclusive" policy.
- The key here is a movement towards totally inclusive process; however, in practical terms it will be difficult to attain. I would prefer to think that all efforts would be made to make the process inclusive.
- All members of Dalhousie should be included in a policy that affects so many
- Environmental policy is a technical issue, surely unsuited to inclusion. Who would want an "inclusive process" for, say, the design of a bridge or the selection of a scalpel during surgery?
- People have to feel included. Of course there will be some who do not feel completely included if they disagree but not all people will be happy with everything.

Item 107

Lobby Macleans Magazine to have "green" rankings in university guide

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Stay with my numbers because for academic institutions, I believe students would want to know a ranking such as this but it is not the sole reason for choosing a university, only a small part for most, so it is desirable but we could survive without it. As for feasibility, it would be difficult to rank, I think, because of the vast differences among all universities and I don't know what the implications would be for the people who would actually have to do it.
- I don't see how lobbying is not absolutely feasible.
- I thought it was a good idea but that it probably wouldn't be feasible. But seeing that others think it would be feasible, then, sure, I guess I'll say it's feasible. What do I know?

- Universities are for another purpose. Being “green” is desirable, I’ll agree. But so is being faithful in marriage. Should Macleans Magazine report on whether university staff are faithful? One shouldn’t beat children either. How about a ranking for that?
- I think the University has more important issues on its plate than lobbying Maclean’s to have green rankings. Also, it would possibly require a large majority of other institutions to persuade Macleans and themselves to devote scarce space and resources to add this category.
- I figured Macleans would jump at the chance to sell more magazines
- I think this is a very important motivator for universities to do a good job and implement policy. This is an extremely important part of accountability. We just need to create a methodology for do so. Dalhousie could be looked at as a real leader if they took the lead on this.
- I’m not sure whether or not this would be easy to do – again I do not know enough to make an informed answer.

POLICY ITEM 8: Adopt an implementation plan for the environmental policy.

and

POLICY ITEM 9: Review the environmental policy and monitor its implementation.

Item 119

Review implementation policy annually and create changes

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Review is very desirable – not sure about feasibility, however, as I'm unaware of what would be involved.
- In all cases (for this item and all items following), I have changed my answer from 4 to 5, it is simply because I was hesitant to use 5's for anything when I did the previous questionnaire (I'm like those nasty teachers who refuse to give 100%, I like to hold out in case something turns up that really deserves the top mark).As for feasibility, money might become a sore issue with administration, and it may be hard to convince them to do it annually.
- desirable but dangerous - might become a diversion of time and energy, a way of talking not doing
- All policies should be reviewed and modified (if necessary) on a regular basis to maintain standards
- A year is a very short time. People resent meetings that are unnecessary, and the resentment makes them contribute less than they should (who has not skipped a silly meeting and then regretted decisions made by those so silly as to have attended?)
- I am not convinced that the policy needs to be reviewed annually and even less convinced that a sufficient number of stakeholders can find the time to do it this frequently. Also, many of the items will require more than 12 months to implement and much longer to determine their effectiveness
- I am skeptical about whether or not people would critically evaluate the policy on an ongoing basis.
- Hmmm... might be a lot of work to do and a bit on the bureaucratic side of things but even though I hate this sort of thing I think it is very important to review the policy and follow up.
- I think this would be an easy task.

Item 115

Set definitive timelines for implementation of policy

	Group Score
Desirability Median	5
Feasibility Median	4

Comments:

- Would be favourable to be able to set definitive timelines but perhaps a bit idealistic.
- Timelines are easy to set. Meeting the timelines is a different issue.
- there might be resistance from people afraid of becoming scapegoats for failures to meet deadlines
- Setting definitive timelines for implementation is an easy exercise and commits those involved to a schedule. I disagree with the group score that the setting of timelines is anything but entirely feasible.
- If there is no timeline, how can one judge the success of the program
- As with item 119, timelines are difficult. A definitive timeline also has the fault of cementing poor decisions made at too early a stage. Therefore this is highly undesirable. It is not feasible because reasonable participants would outvote zealots
- As very few of those involved have any idea of the implications of the policy, and even less about how long it would take to implement, the proposal (at this time, at least) is unrealistic.
- We have learned for all environmental agreements whether international, national or for a university that there must be clear goals, timelines and accountability.
- I do not know if the resources (time or staff) are available. 3 is my answer when I do not have enough information on the subject to make an informed answer.

Items the Group Rated as “Unsure” or Lower in Desirability

In the following section, I have listed all items that the group rated as being unsure, or undesirable ways in which to incorporate the DRAFT University Environmental Policy into the activities and structure of Dalhousie University. The items listed below had a low median score for desirability (1-3), and a low interquartile range (0-2).

Policy Item 1: Foster environmental literacy for all and educate for environmental citizenship.

Item 14

Do not continue with the current Draft Environmental Policy as it is an ill-informed and ill-conceived document and is laughable junk science

	Group Score
Desirability Median	1

Comments:

- I left a 3 on this one as it obviously is someone's opinion and not necessarily an objective look at the Draft Policy. Instead of 1 (undesirable), I left a 3 as a “neutral” opinion on this comment.
- I wouldn't be putting in all of this time and effort to do these questionnaires, think about the questions, and all that if I didn't like the idea. Besides, anyone who thinks that environmentally friendly leadership, etc. is hog-wash should be sent to Mars.
- I'm not understanding this very well today. I believe, from what I can figure out, I was saying that we should trash the current draft. However, I answered this question without having read it. I was taking the person who wrote the suggestion as face value: If it's a piece of junk, trash it, and work on a new one. The slash and burn sometimes is a good method when working on policy.
- While the aims are laudatory, I agree with those who believe much of the policy is not sufficiently well-informed
- Not familiar enough with current policy
- Although most people seem to disagree with this, if somebody put forward the suggestion there are obviously some problems that need to be addressed.
- I don't really get what this joker is saying. Hard to really comment on but I think this comment should just be forgotten. That is what my 1 means.

Item 11

Offer information in a variety of languages

	Group Score
Desirability Median	3

Comments:

- On a campus such as Dalhousie, this is not necessary. All classes, except for language classes of course, are taught in English, which would lead a person to believe that at least 99% of students, faculty, and staff can at least read or speak some English. It is a very involved process to translate correctly and could become very costly as well so why bother when realistically, everyone will be able to read the English one.
- Depends on the student body. How many of our students cannot read English? My guess would be none.
- Nice idea, but most foreign students either have enough of an understanding of English/French or are smart enough to ask for help.
- a great deal of information is available in a multitude of languages
- I think that the amount of international students I see on campus who respond positively to Halifax's recycling program would really be impressed with this suggestion. In my program alone, students will be taking back their experiences of Halifax to their homes and implement some of the programs. I have people in correspondence with HRM offices for details.
- If we have language departments on campus, why can't they be involved by providing translation?
- We have many linguistic groups on campus; why not cater to them?
- We are moving towards more ethnic diversity
- I would continue to rate this idea as being very desirable because of the broad base of students we have at Dalhousie. Putting out information in a variety of languages can only help communication and although I wouldn't suggest staff support in all languages, written publications would seem like a reasonable scope to me.

Item 22

Add an environmental component to the new skills transcript program

	Group Score
Desirability Median	3

Comments:

- I have to change to 3 on this one because I'm not sure what it would involve. I think it would be somewhat desirable but I'm not sure what the current skills transcript involves so I'm uncertain as to how this would alter the current program.
- I think that this would be a neat idea and it could help students when job searching. I know of at least one course that would qualify and I don't think that it would be very hard to implement this. I don't understand why it was given such a low group score.
- This is easily accomplished by having them take Phil 2480, Ethics in the Environment or Science 1000, Intro to Environmental Science, Mgmt 1001, Intro to Mgmt Issues II that deals with environmental issues. It seems to me that a course along these lines is offered in many different faculties/departments. An Environmental angle could come from many different perspectives, thereby satisfying the science minded, business minded, or philosophically minded student.
- This is the only way (or one of several key ways) to change people's attitudes

Item 23

Expand existing undergraduate interdisciplinary environmental studies programs and combine it with SRES to form a new Faculty of Environmental Studies

	Group Score
Desirability Median	3

Comments:

- This isn't such a bad idea – I mean, a new faculty may attract more students and this is increasingly becoming a subject area in demand around the world. Just one more offering at Dalhousie would potentially be a good thing if the program was reputable and well run.
- If Dalhousie wants to focus on becoming ore environmental, starting with their students seems like a good thing. Again, I don't understand the low group mark.
- A faculty similar to universities with strong, existing environmental studies programs would strengthen the voice and legitimacy of environmental studies at Dalhousie.
- I thought this was an innovative suggestion. The program is so diverse that it could easily be done.
- I believe a similar program is underway in the Faculty of Engineering
- I think the idea is worth considering
- This has been desired by SRES leaders for at least a decade.
- I would like to take this program and would consider going to AI to do it. I am not really happy with my program (IDS) and think that this would be a better option.

Item 26

Require all students to pass an environmental literacy exam before graduating

	Group Score
Desirability Median	3

Comments:

- I think this is relatively ridiculous. I mean, next we will be asking them to pass a physical before they graduate. This is an academic institution where students pay to learn the subject area in which they are enrolled. We cannot force people to take an environmental literacy exam any more than we could enforce them to do a mandatory 50 laps in the pool to graduate. You can't force things down people's throats and expect them to just lay back and take it – this idea would never work.
- This might be cool, but I'm not sure how feasible it is, and it would be foolish of us to assume that it would be easy as the level or degree of knowledge will vary between faculties (ex, marine biology students will probable learn more about the environment then math majors).
- From my personal experiences and informal testing results I would argue that a majority of university graduates are ecologically illiterate. Thus I feel my score reflects a desirability to change this status.
- I found this Draconian. Why I didn't find the others Draconian was because students could put their mark on their course work. However, the exam would be an undesirable duty that would give Dalhousie a black mark. And, anyway, it would be completely hypocritical. No department on campus is living to the ideals that any exam would espouse. Maybe I'm misunderstanding the content of the exam, but that's how I understood the suggestion.
- I had a mandatory ecology course in university that I hated. Students should have choice, especially those in more related disciplines
- Seems inappropriate and irrelevant
- Why not pass a jazz exam, since jazz is also something I care about? Or art?

- For the most part, I don't think university testing is an accurate representation of what students know, so I don't think that this test would accomplish much.
- I didn't think this was suitable to completing their degree.

POLICY ITEM 3: Facilitate environmentally appropriate choices by its employees.

Item 45

No salt on sidewalks

	Group Score
Desirability Median	3

Comments:

- If an acceptable alternative could be found, then it might be okay, but if there were an acceptable cost-effective alternative, I'm sure they would be using it already. You can't just leave the sidewalks icy as Dalhousie has a legal obligation to keep campus safe for its students, faculty and staff and the money they would save on salt would cost a thousand times more in the lawsuits they would have to settle for people wiping out and breaking limbs. Not realistic at all unless a very acceptable alternative could be found that would be cost effective for Dalhousie as well.
- Requires study regarding cost and safety implications.
- Opens liability issues if ice does not clear up enough. Though I do prefer sand in some weather.
- 1) I walk and don't like to fall 2) what does it matter? a) Dalhousie is only a short distance from salt water b) who uses groundwater on the peninsula? c) if necessary change pathside vegetation - though I don't see much that seems damaged by salt
- Salt has been recognized as a toxic substance under the CEPA legislation. Alternatives and simple solutions exist in place of salt.
- It seemed to me that if Denmark can do this, why can't Dalhousie? If we set a good example at Dalhousie, then the rest of the community, including HRM at large, might take notice. However, since I answered this question, I've learnt that the salt that goes on the streets of Halifax does not actually harm the water system or gardens. So I've lowered my initial score, but I'm dubious about my position on this matter.
- I find that sand is not nearly as safe as salt. Besides salt application is so rare on campus that we'd be jeopardizing safety if we used sand in the same manner
- Do you know ANY old people? No salt means slippery ice and that means broken hips. When a 70 year old breaks a hip, she can spend the rest of her life in bed. Think about that. Shame on the person who says this is desirable. Shame.
- If there is a good alternative to the salt in NS's climate this would be a fine suggestion, but personally I'm not to sure what the harmful effects of the salt are.
- We could use sand, like Albertan's do. Salt wears out footwear and vehicles
- Why not?

Item 55

Make the parking fee less for small cars and more for big ones

	Group Score
Desirability Median	3

Comments:

- This idea perhaps is as ridiculous as the mandatory exam. First of all, is it better for four people to each take their own little car with only themselves in it or to take one bigger car with four people in it? Not to mention the fact that you can't penalize people for owning a car they must have – i.e., if someone has four kids, why make

them pay more because they must have a minivan. Not all people can have small cars so this is discriminatory in a sense. Also, do you really think this can be enforced? I mean, you sign up for a parking pass, saying what kind of car you have so what's to prevent people from listing "Toyota Corolla" instead of "Ford Explorer" – who's really going to know the difference? You pay the cheap rate and then just take whatever vehicle you have, whether it's big or small. I could go on and on but I won't – just chalk it up to an impractical and insensitive idea.

- That's silly and could probably be argued against in court as being prejudice towards big vehicles.
- I feel that people should have to start sacrificing personal choices for the benefits of society and their community. Large cars pollute more and are not necessary for more than 90% of average transportation requirements.
- Well, as I ride bicycle all year, I had no problem with this suggestion.
- Can't track it. Can easily get pass for one car and use it in another
- Expectation that student's buy "new" cars at choice opposed to used cars they can afford
- Let those who can afford monstrously large vehicles pay more. Encourage the use of small efficient vehicles.
- Those who don't like this item must own big cars
- I agree with the idea of this suggestion as a means of discouraging large, inefficient gas guzzling vehicles, but a better way of implementing it might be to base the rate on fuel efficiency rather than size.
- Incentives are needed
- I thought that this was ridiculous.

POLICY ITEM 4: Set an example of environmentally responsible consumption.

Item 74

Adopt a University Precautionary Principle Policy!

	Group Score
Desirability Median	3

Comments:

- Upon reflection, I'm not sure what this meant but I'm sure I put a low score because I'm sick of committees and policies – let's have some action!!!
- I am not familiar with this concept.
- I am sure Dalhousie already invokes a risk management analysis when contemplating investments. Developing a precautionary approach to administration and management would provide incentive to contemplate impacts from university decision-making outside the box.
- I'm surprised people didn't see this was a desirable option. What's the matter with them? Don't they know about the precautionary principle? Anyway, I'm not changing my mind.
- Although I don't know what this means, it smacks of ill-considered middle-headedness
- I have no idea what this is, nor what the implications of its adoption would be
- A complete shift in attitude is needed here
- Why not? The university would instantly have to make better decisions. This is still a high priority for me and should be part of the policy.

POLICY ITEM 5: Manage its buildings and grounds in an environmentally responsible manner.

Item 91

Stop burning bunker-c

	Group Score
Desirability Median	3

Comments:

- And freeze?
- it would fit with the buy locally principle too
- Alternatives would be required before this happens.
- The group is out to lunch on this one. It's highly desirable that we not use Bunker "C" but NOT at all possible
- I am increasing my score because I now have a better understanding of emissions from bunker c and how they compare with other alternatives. It might be expensive to switch to alternative generating sources but I think the expense could be marketed in a positive way.

POLICY ITEM 6: Invest its financial resources in an environmentally responsible manner.

Item 104

Delete Policy Item 6 in the Draft Policy as it hurts the pension fund

	Group Score
Desirability Median	3

Comments:

- I don't know enough about all of this to have an informed opinion.
- I think this is an irrational and of the cuff statement and depicts perfectly a self-serving attitude influenced by capitalism and individual thinking.
- Don't know what Policy Item 6 is, so I guess I went middle of the road.

POLICY ITEM 7: Lead in the community, and in so doing provide an environmental role model for other universities and organizations in Nova Scotia, Canada and internationally.

Item 106

Offer students fee reductions for environmental volunteerism

	Group Score
Desirability Median	3

Comments:

- Not realistic as it cannot realistically be monitored. Also, this totally diminishes the useful volunteerism that students do in other areas, such as at the QEII. I know many of our students volunteer in many capacities that are of direct benefit to people who really need the assistance. To me, this is more worthy of fee reduction than environmental volunteerism. This is just my opinion, however, but realistically, you can't rate one type of volunteerism over another – it's all of benefit to society – so you can't justify giving fee reductions to volunteers of only one type.
- This is an excellent method to instill environmental awareness and values in students and rewards their achievements through reductions to an already (extremely) high tuition level. This is in line with bonuses and benefits awarded administrators for their work.
- Today I'm thinking that offering monetary compensation for volunteer work defies the principles of volunteering. So now my score is reflecting non-desirability.
- Not fair to students with other interests
- Rewards for responsibility = good lesson
- In the net, fees must be equal. Therefore, non-volunteers must pay more. What if the student whose budget requires that they work to support their studies lacks the time to volunteer? They pay double. This is a "make the poor pay" scheme and I think it is grossly, manifestly unfair.
- I think this is ridiculous. Even if we could afford it, where would it all end? Every other volunteer group would rightly ask for the same break!
- In a general sense I feel that the University has to do more to recognize well rounded students and this seemed like an excellent idea to me (giving them credit for the volunteer activities is another idea). I would like to see some sort of recognition system in place for all student volunteerism.
- The University needs all the income it can get. Volunteerism is valuable, but not substitutable

Extend to all volunteer work.

Item 110

Redefine the University's Mission to include the promotion of human goods (e.g., education) and non-human environmental goods (e.g., the autonomy and flourishing of the environment).

	Group Score
Desirability Median	3

Comments:

- Not overly desirable – you can't just fiddle with the University's Mission statement to include things that you think might be neat to have on it.
- Why not?
- a university's mission should be clear and simple, and concerned largely with the creation, transmission and application of knowledge - if by "include" you mean as part of the primary mission statement, then I stick with 1, but if you mean as a subsidiary direction for focusing that knowledge, then I would change to 2
- This could probably be achieved in a more palatable fashion through without the use of "economics" jargon.
- I think this university has very little vision and is scared to do anything innovative. Since Acadia has the technology age market cornered, why not have Dalhousie focus on the environment. It is the future, after all. We cannot sustain ourselves as a society. Consequently, somewhere along the line, the university will be seen as fore-thinking should it address the issues of the environment on campus and in the classroom.
- The mission statement has another purpose. This is as silly as "break in to the surgery room during operations to give environmental speeches". Silly silly silly.
- It would help to further highlight such concerns as of central importance to our general ranking of concerns
- We could and should be this proactive and a leader.

POLICY ITEM 8: Adopt an implementation plan for the environmental policy.

and

POLICY ITEM 9: Review the environmental policy and monitor its implementation.

Item 113

Become ISO14000 registered

	Group Score
Desirability Median	3

Comments:

- I have no idea what this would involve
- Again, I don't know enough to have an informed opinion.
- Who does it change, who does it impress?
- A waste of energy. This would only be important if the university was selling goods.
- I don't know what this is today. In the questions in which I don't know the answer, I suspect there might have been more explanation in an earlier version of the survey. If this is not the case, I'm concerned that I've answered without knowing what the heck I'm talking about.
- Certified stand on issues makes a strong commitment
- I have no idea what this means
- It's essentially meaningless
- This would be a nice step to take but from what I have seen of the different ISO protocols in action it is very easy to hide behind them. If we go ahead with many of the other items you wouldn't need the ISO registration, but on its own the registration wouldn't serve much purpose.
- Can't we show some leadership? This would be an excellent research and teaching venture.

Item 124

Have severe punishments for departments who have not met milestones on implementation plan without good reason.

	Group Score
Desirability Median	3

Comments:

- I think seeing the word "severe" alone is ridiculous. I left my score at 3 because I do think that departments need to take some responsibility on environmental issues but you can't take "severe" (what is this – beheading?) punishment on a department. The department is there for the student – to offer programs and make sure the students are receiving a quality education. While environmental responsibility falls into that somewhat, it's low on the scale. I think maybe some form of small reprimand may be in order that would encourage departments to rethink the way they do things but "severe"? I don't think so!
- Severe punishment is not appropriate when we are trying to encourage environmental sustainability.

- carrots always better than sticks - and the main punishment would be budgetary - small enough already
- I think this is very desirable, however, I do not know what punishments would be warranted.
- Not of the school of severe punishment in order to communicate. Severe punishment is the tool used by those who want to control. If these ideas are meant to be, then with some energy and work, they will come about. If they are not meant to be after the hard work and energy, then our job is to apply wisdom, observation and then find new ideas that might work.
- Like what?
- No punishment = no responsibility
- What is that spanking? Dismemberment? Dismissal? And WHO is punished? The professors? The graduate students? The cleaning staff?
- To ridiculous to comment on
- I'm wary of possible unfairness here as well (mindful of eco-facism)
- If we can reach a consensus on what the milestones should be I don't see why not to have penalties for not meeting them (or rewards for success). What is the good of the plan if there isn't anything to back it up.
- We need carrots, not sticks. The university is NO PLACE for severe punishment
- maybe severe is too strong, there has to be accountability though

Items the Group Rated as Highly Desirable and Not Feasible

In the following section, I have listed all items that had a high level of consensus amongst the group as being highly desirable but not feasible ways in which to incorporate the DRAFT University Environmental Policy into the activities and structure of Dalhousie University. The items listed below had a high median score for desirability (5), a low median score for feasibility (1-3), and a low interquartile range (0-2

POLICY ITEM 3: Facilitate environmentally appropriate choices by its employees.

Item 60

Catering and fast-food outlets on campus should offer ONLY non-disposables

	Group Score
Desirability Median	5
Feasibility Median	3

Comments:

- I may be a bit slow but what exactly is meant by a non-disposable? How on earth could companies do this – I'm sure Robin's Donuts on campus is not going to hand out silverware for their customers to stir their coffee with. Not realistic at all or financially feasible for the companies.
- So, there would be no take-out service?
- That is not fair to people who can't afford to buy a non-disposable on the one day that they decide to have a drink or forget their re-fillable mug.
- so we walk off with our hamburgers in our bare hands? disposable but biodegradable would be better
- This is entirely feasible and the university must be willing to demand the services from the contractor or otherwise assume the role on its own.
- I didn't think that catering services would actually go for this. It would have to involve all the surrounding food restaurants in order for their business to be maintained. But, it would also be a great coup if it did work.
- This is not feasible because it doubles labour costs, that also makes it not especially desirable, since it means that only rich students can get lunch on campus
- I think disposables may be permitted in some cases
- I would rather see substantial discounts for the use of non-disposables. If people are visiting the campus, it would be good to show them what the campus is trying to do, but at the same time they should be able to eat if they haven't brought their own plates and utensils
- Very feasible. Done at UVIC I believe.

Item 46

Only allow for 100% post consumer recycled non-chlorine bleach paper to be sold on campus

	Group Score
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Desirability Median	5
Feasibility Median	3

Comments:

- I think it might be nice to do this but you can't limit choices. People on campus are paying for certain services and they need to have choice to ensure that what is offered will fit their needs. Otherwise, say goodbye to them and their money!
- This requires study, but experience has shown that copiers, printers, fax machines do not operate efficiently using recycled paper. Either the paper quality, or the equipment paper handling capability needs to improve.
- Hard to come by and expensive!!
- sounds like a good way to make enemies - university culture does not welcome such stringent regulation, even if it makes sense - likely to waste inordinate time and make environmental enemies
- A no-brainer. This should be mandated in procurement policies.
- Again, I thought this was a good idea but didn't think that stationary would actually research this and implement the change in products.
- We buy our own paper from Stationary Stores. If they buy this paper, we have to as well
- This paper works poorly in our printers. Broken printers are not recyclable. Furthermore, these paper products are more expensive. Somebody has to pay the cost.
- I don't know much about this
- Virgin fibre is needed in the paper cycle. Virgin fibre can come from sustainably managed forests. Why discriminate against university paper customers?

Item 44

Create bike lanes to campus

	Group Score
Desirability Median	5
Feasibility Median	3

Comments:

- I think this is a good idea but how it would affect traffic is another matter. Our streets are somewhat narrow as it is so I'm not sure how this would be done but trust me, I would love to have bikers in their own lane and out of my way! Don't get me wrong, I enjoy the fact that they are environmentally responsible and also physically fit from their biking but as someone who must drive to work (coming from a distance), it's really aggravating to have bikers in car lanes.
- Where?? There's no room, besides if people brought their car this far their not going to whip out their bike for around campus.
- HRM now has a councilor who heads a municipal bike policy committee. Dalhousie planners and administrators could work with HRM to make this a reality. The alternative consists of bikers spray painting the roads to create a safe and positive biking environment.
- I really thought this was feasible. It wouldn't take that much to figure out routes and it would definitely be a good publicity move. "Dalhousie is the only campus in town that cares about bike lanes."
- Sidewalks and streets are barely wide enough for pedestrians and cars as it is.
- The question is how open would the city be to the required changes?

- This is impossible. How far does “to campus” extend? I’ve known people to cycle from far away. Will Dalhousie pay for bike lanes on Purcel’s Cove Road? In Dartmouth?
- Cannot be done without the cooperation of HRM and residents. I’ve noticed that the bike lanes already created are parked on by motor vehicles
- I think there is an excellent potential for bike lanes in the Halifax area. A successful plan would require eliminating some parking zones and replacing them with bike lanes. I have spent some time thinking about this and I would consider it quite feasible to have bike lanes from the West end, north end and Dartmouth coming into the downtown core and the universities.
- Halifax streets do not lend themselves well to bike lanes, and they will irritate motorists.

POLICY ITEM 4: Set an example of environmentally responsible consumption.

Item 70

Invest in environmentally benign companies

	Group Score
Desirability Median	5
Feasibility Median	3

Comments:

- Not sure what was meant by this so I remain neutral.
- I think that this is more feasible then people think. It may not have as a big of a return in some cases. But Dalhousie could invest at least a portion of their funds into such companies.
- I suppose I am unsure of how this would occur rather than under the thinking that it wouldn't be feasible.
- If this is to get adopted, then seminars, student involvement, alumni involvement should be considered so that we all take responsibility for the outcome. Applying ethics to money matters is tricky these days. After some discussion and patience and allowing for all sides to be aired is the key to making any insightful inroads. This is a touchy issue for sure, but not impossible obstacle.
- It would require effort and will, but it could be done.
- Why is this not a five in feasibility. Only a lack of leadership can explain this. Environmentally friendly companies are and will continue to out perform other even in the stock market along as being members of the community and good environmental stewards.

Item 67

Use wind and solar energy on campus

	Group Score
Desirability Median	5
Feasibility Median	3

Comments:

- Sure, this would be ideal but if it were really feasible, I'm sure it would have been looked at long before now.
- It's too foggy for feasible solar power. Though perhaps wind power may be feasible as it develops and makes its way to NS.
- I think it is more feasible than others seem to
- This is absolutely feasible and I disagree with the group feasibility rating. All it requires it a pilot to see how it could work.
- With any new building, these options are very feasible. We could offer the solar power to others than just the campus users. Perhaps the alternative power source could be shared by the surrounding residential community. If done properly, Dalhousie could actually make a profit by offering this service.
- Research on these subjects is being done on campus; we should take advantage of this to promote the science and the benefits
- Use as much as economically possible

- Where will the units go? Who will pay for them? Who will repair and maintain them? How will the power be put onto the grid? If it costs less, it would have already been done. If it costs more, tuition will have to go up. If tuition goes up, the bring (but poor) student will go elsewhere to a lesser school, and not learn how to solve life's problems, including environmental problems
- This would only be possible on a demonstration basis; we could not seriously meet our needs using wind and solar energy
- I don't know enough about these energy sources to really say how feasible they are.
- Perhaps we could GENERATE some, and then feed it into the grid?
- This is definitely possible and the new building proposed should use solar, both active and passive. Wind should be looked at for the top of the Life Science building and the best part is no one can complain that it is ugly because the building would still be even worse.

Item 66

Dedicate a few buildings on campus to total self-sufficiency

	Group Score
Desirability Median	5
Feasibility Median	3

Comments:

- Too expensive and too much work.
- Again, there are no excuses as to why this could not happen. Leadership, drive, and the willingness to invoke change are required.
- This is essential for any environmental plan to work. If we don't have on going applications of our principles, then we cannot derive any insight on how to improve. It becomes an exercise on paper that means ultimately nothing, unless we have working models.
- As new buildings are built, this should be the goal
- This insane. Will urine be clarified for drinking water?
- Unworkable
- Once again, I really have know idea how feasible this idea is.
- I can't see what end this would serve? Why not bring all buildings to reasonable efficiency?

Item 64

Have administrators take the lead in environmentally responsible consumption

	Group Score
Desirability Median	5
Feasibility Median	3

Comments:

- I don't think administrators should have to take the lead – I mean, they should do it but I think everyone in the departments can take their own lead without waiting for someone else to do it.
- Requires top level commitment and resource allocation.

- : I think that we should focus on all people involved not just administrators. Besides, who's going to notice or care about what they do (assuming that we can get them to cooperate).
- they tend to be old, conservative, money driven
- I don't think that administrators should be the leaders. I feel this is the responsibility of all who participate as Dalhousie University members. However, I do believe that administrators could take a leading role in this form of sustainable activity.
- Some administrators could take the lead. Others wouldn't want have any desire to. As part of a whole university-wide initiative, however, I think it's feasible to get the administrators in on the plan. Practical ways of implementing policies would emerge if included in the process. However, having said that, I don't really think the campus administrators would really be that interested. In fact, I think they would grumble and work-to-rule (do very little of the stuff that wasn't part of their job description).
- Lead by example!
- This is undesirable because they have a lot of other work to do. Time spent on this is time not spent on facilitating education and research. This is not feasible because students and professors wouldn't allow the system to collapse through such misguided redirection of precious effort
- Lead by example. Can be done.
- My experience with AI is that the administration is very weak in most areas, especially those requiring a high degree of commitment and I would not want to rely on them to carry this plan through

Final Comments From Participants

- I guess my only comment is that I think Dalhousie could do a much better job of being environmentally aware and sometimes some great ideas start with brainstorming such as these questionnaires from various people. However, I found that a lot of comments from people (perhaps myself included) didn't take into account so many other things. For instance, you can't focus solely on the environment when there are so many other things that are equally as important to campus and society. For instance, I'll refer back to the mandatory exam question (sticking out in my mind, I guess). I think if the person that suggested this and those that agreed with him/her really thought it out, they would realize that every department on campus likely thinks their subject area is very important and that all students should be competent in this area (i.e., grammar and writing skills is a good example) but they don't require an exam because you can't force people to do this type of thing if this is not what they're paying for. Ideas to help out the cause of environmental awareness on campus must take into account all the other things on campus – you can't just look from an idealist point of view and think of ideas without thinking of consequences (i.e., cost, the human factor) or you're really back to square one. Other than that, however, some of these ideas were refreshing and I do think we could make more of an effort so I am very interested to see the results of this study!
- While many of the items noted are desirable, most will require further study in order to determine feasibility. Just because a group “thinks” an item is feasible, does not make it so.
- Even with top-level support, an environmental policy will only be successful if appropriate resources are allocated to conduct these studies. How will this be funded? (Please don't say from savings unless there is already proof that saving will occur). Existing resources are already stretched to the limit!
- Thanks for asking for opinions and such. It's nice to know that our thought might matter.
- It is time for Dalhousie to implement the policies they create and measure their failures and successes according to realistic timelines and audits. Dalhousie has shown interest in pursuing environmental sustainability by signing numerous documents. However, it is my opinion that Dalhousie has failed to adhere to these documents and statements, especially when compared to other Canadian universities of similar size and economic status. In fact, there is evidence to show that other universities who have not signed any declarations are actually further ahead in terms of environmental sustainability and the teaching of students who graduate with some form of environmental literacy. It is my firm belief that Dalhousie administrators would fail a simple test for ecological literacy. To become a leader, as Dalhousie consistently strives towards, the university should adopt the recommendations of this study.
- The results of this study should be made available to the university population. Overall, I feel that the Delphi process was an efficient method to obtain expert knowledge and opinion on an obviously complex yet important topic.
- Good luck with this. Where my comments seem negative, they arise from decades of thought – sober though – on environmental issues. That which is silly, or terribly

expensive hurts the cause. That which is guided by emotion, or by consensus of the ill-informed, leads to poor policy. That which sees only one issue, and not inherent consequences is not just mistaken, but also immoral for coming from a thinking person. The environment belongs to all of us, and our children's children and those who love it should think and THEN act. If members of a university can't do that, than who can?

- Although I realize you are only looking for impressions, it is not productive to ask for a response for "feasibility" when most respondents have no conception as to whether or not an item is feasible.
- Thanks I enjoyed to this and hope that something real comes out of it.

I am surprised how everyone wants to do everything. We should pick a couple of key things and run with them!

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